

QUARTERLY REVIEW
of
OTORHINOLARYNGOLOGY
and
BRONCHO-ESOPHAGOLOGY

Vol. 8 No. 4



December 1949

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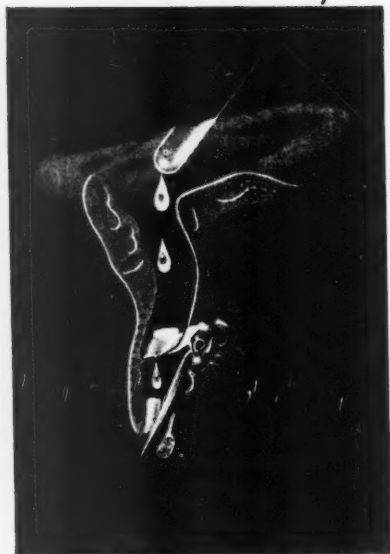
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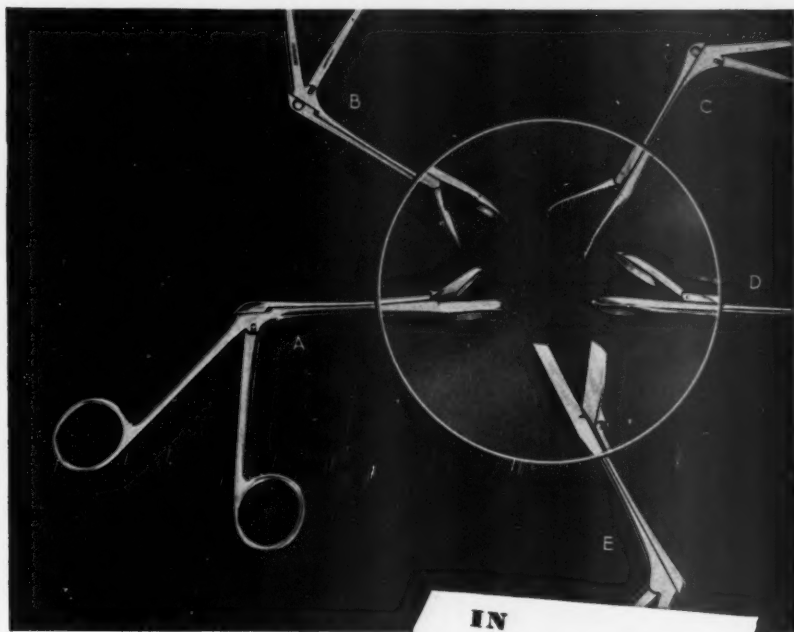


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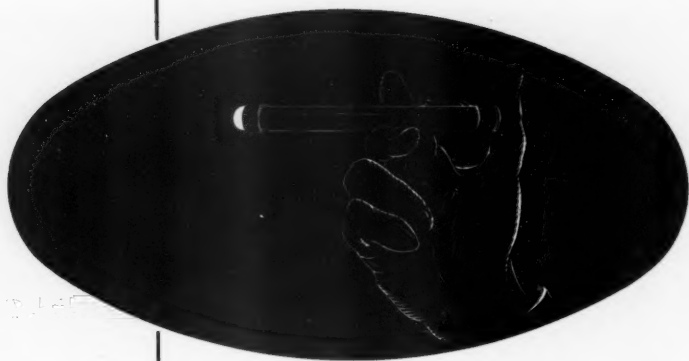
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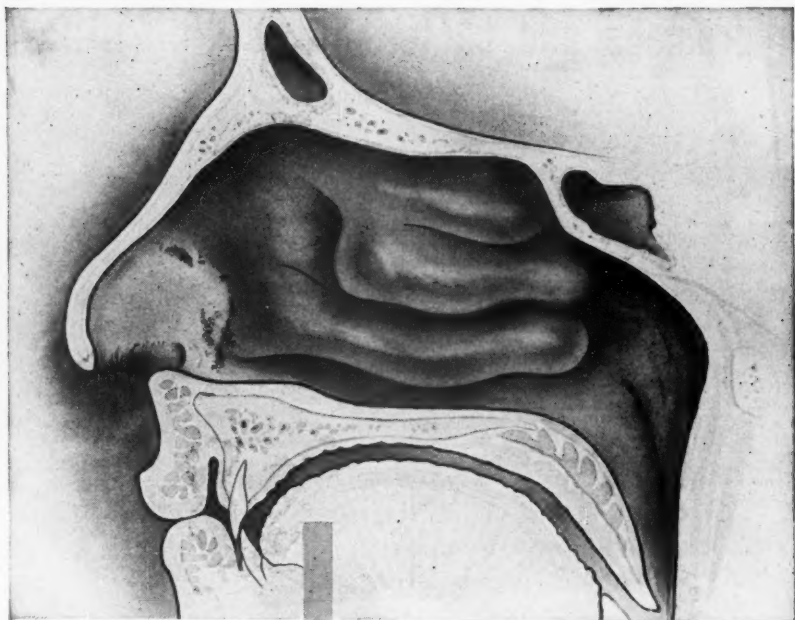
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OTOLOGY

1. Audiology

Recent Developments in Auditory Tests. *S. Richard Silverman, St. Louis, Mo.* Proc. Roy. Soc. Med. 42: 675-86, Sept. 1949.

There has been a great deal of progress in the development of articulation testing in the past decade, particularly for clinical purposes. The basic concept in this type of testing is the articulation function, which expresses the relationship between words heard correctly and the intensity at the ear of the listener. The articulation test in one of its forms measures the threshold for hearing. This test is composed of words of rather easy and equivalent audibility. Another articulation test which represents proportionately the frequency of occurrence of phonetic elements in the English language measures the loss for discrimination. The maximum articulation score, using the P.B. lists, is helpful in distinguishing between conductive deafness and perceptive deafness and is also helpful in prognosis for medical, surgical and prosthetic procedures. The Social Adequacy Index, which is the average of the subject's ability to hear words at the faint conversational and loud speech levels, is described. Both simple and elaborate arrays of equipment for administering articulation tests are given. Articulation testing, in the present state of the art, should be viewed critically and, in some instances, experimentally. Ongoing research says that articulation tests need to be increasingly refined and validated and they need to be streamlined further for clinical application. They are not intended to supplant orthodox clinical tests but they are a valuable supplement and they should hold a reasonable place in the armamentarium of the clinical otologist because they are quantitative, reproducible, reasonably valid and tend to objectivize the responses of the patient. 17 references. 13 figures.—*Author's abstract.*

Hearing Changes During Pilot Training. *Ben H. Senturia, M.C., AUS. Mil. Surgeon 105: 205-08, Sept. 1949.*

Much controversy exists regarding the degree and permanence of hearing impairment which occurs as a result of exposure to airplane noise. Most of the available studies are based on audiograms of pilots obtained after the completion of long periods of service in the Army or with commercial airlines.

At the Army Air Forces School of Aviation Medicine, it was possible to study the hearing changes in 100 pilots who had records of 20/20 hearing for whispered voice when they entered pre-flight school. The ages of the students ranged from 18 to 27 years with an average of 21 years. Ninety-eight per cent of the men had flown less than ten hours. At the time of the initial audiometric examination there had been no exposure to airplane noise during the preceding thirty days. These same 100 men were interviewed and re-examined by the same medical team with the same calibrated audiometers after the completion of each phase of their pilot training, viz., after primary, basic and advanced pilot training. After the completion of nine weeks of primary pilot training, 74 of the original 100 students were available for retests. Comparison of the audiograms obtained before and after primary pilot training revealed that 19% of the ears tested showed a hearing loss of 15 db. or more at one or more frequencies (1024 to 11,584 cps.). There was a real tendency for these losses to be associated with the sound frequencies 2896, 4096 and 5792 cps. Sixty-four of the original 100 subjects who started training were then transferred to basic pilot training and flew fifty to seventy hours. When the audiograms following basic training were examined, it was seen that 27.3% of the ears showed 10 db., and 19.5% showed more than 10 db. loss at one or more of the frequencies tested. The losses tended to localize between 2048 and 5792 cps.

Fifty-four of the original 100 subjects were assigned to advance schools and successfully completed advance pilot training. Each subject flew approximately 70 hours and thus accrued about 210 hours of total logged flying time. Because of a wide discrepancy in rest period preceding the final audiometric test, it was necessary to divide the men into two groups. Forty men (80 ears) had 24 hours or more of rest prior to audiometric retest. This group was referred to as the "rested" group. Fourteen of the subjects were retested one half to eight hours following the completion of their last flying mission. This latter group was referred to as the "non-rested" group. In the case of the "rested" ears, the average hearing losses which occurred after primary or basic training or both, were partially recovered after advanced training. Only at 4096 and 5792 cps. in the right ear, and 5792 cps. in the left ear are residual losses still in evidence following completion of advanced pilot training. The "non-rested" group of ears offer a striking comparison. Although the curves of the primary and basic group are essentially like those of the larger "rested" group, the average hearing losses following advanced training were widespread, involving the frequencies from 1024 to 5792 cps. inclusive.

The following conclusions were drawn from these observations: 1) a fairly large percentage of the men in pilot training showed temporary hearing losses following a period of exposure to aircraft noise; 2) these temporary losses tend to involve the frequencies 1024 to 5792 cps; 3) in the more vulnerable 2896 to 5792 cps. regions, the recovery of hearing losses was delayed resulting in some increased "V" notching; 4) insofar as pilot training is concerned, the prediction that large numbers of flying personnel would be permanently deafened by their flying experiences in World War II was not substantiated. No severe or unusual change in type or grade of hearing loss occurred.—*Author's abstract.*

"Nerve" Deafness: Its Clinical Criteria, Old and New. *M. R. Dix, C. S. Hallpike and J. D. Hood, London, England. Proc. Roy. Soc. Med. 1052: 527-36, July 1949.*

Old criteria of "nerve" deafness, tuning fork tests, have enabled the otologist to distinguish between lesions of the perceptive mechanism and the sound-conducting mechanism of the middle ear. Certain new criteria, loudness recruitment tests and intelligibility tests for amplified speech, promise, in cases of "nerve" deafness, the further possibility of a more precise localization of the lesion within the perceptive mechanism. The authors have shown that loudness recruitment is characteristically present in a disorder of the end-organ of hearing, Ménière's disease, and is characteristically absent in a disorder of the cochlear nerve fibres, degeneration of the VIIIth nerve due to neurofibroma and other varieties of space-occupying lesions of the cerebello-pontine angle.

It is generally believed that according to the old criteria, loss of intelligibility for speech is disproportionately larger than pure tone audiometric loss in nerve deafness and is corrected very little by hearing aids. The authors describe how they have verified this belief, but by means of a correlation of pure tone audiometry and speech audiometry they have demonstrated further that it does not apply to all cases of "nerve" deafness. They have illustrated from speech audiograms of cases of Ménière's disease and VIIIth neurofibromata how, in the former, intelligibility for speech may fall off as loudness increases. In the latter cases, intelligibility continues to improve with amplification in a manner characteristic of conductive deafness. The authors emphasize the remarkable way in which both with the loudness recruitment tests and speech audiometry, the results obtained in nerve fiber lesions approximate those obtained in lesions of the conducting mechanism of the middle ear and point out the great practical importance of this to the clinician. 8 references. 14 figures.—*Author's abstract.*

The Causes of Perceptive Deafness. *R. R. Simpson, London, England. Proc. Roy. Soc. Med. 1052: 536-40, July 1949.*

Based on the clinical study of 100 consecutive cases of perceptive deafness, an attempt is made to assess the primary pathologic factors present. Excluding congenital cases, the primary causes were considered to

be: 1) neuritic; 2) traumatic; 3) vascular (71%). The more recent theories of hearing in relation to the causes of perceptive deafness are discussed. Reference is made to the anomalies in the accepted conceptions of the vascular supply of the cochlea and some evidence is offered for a more accurate description of the vascular supply and the clinical implications. 8 references. 2 figures.—*Author's abstract.*

Dosage and Neurotoxic Effects of Streptomycin (*Streptomycindosierung und neurotoxische Nebenwirkungen*). K. Graf, Zürich. Schweiz, med. Wschr. 79: 793-99, Sept. 3, 1949.

The effects of a constant dosage of streptomycin were studied in a series of 50 adults and 20 children. The dose was administered according to the weight of the patients, usually 1.0 to 3.0 Gm. daily in several injections. By adjusting dosage to the weight of the patients it was possible to avoid disturbances in hearing as well as vestibular disturbances. In adults a daily dose of 24 mg. per Kg. of body weight should not be exceeded, since otherwise irreversible vestibular changes may result. A dose of 20 mg. per Kg. of body weight has a definite therapeutic effect and may cause vertigo, but the latter is rarely irreversible. Vestibular disturbances occur rarely if the daily dose is kept down to 16 mg. per Kg. of body weight. However, in cases in which renal excretion is impaired, even this dose may have ill effects. When renal excretion is normal, the daily dose of 16 mg. per Kg. of body weight may be continued even in the presence of vertigo or dizziness, since the latter are then rarely irreversible. Children are less sensitive to the neurotoxic effect of streptomycin and can tolerate relatively higher doses.

Severe auditory disturbances develop following very large doses only and, in particular, following intrathecal administration of streptomycin. With an intramuscular dose of less than 24 mg. per Kg. in patients with normal renal excretion, no significant auditory disturbances are noted. Slight deafness affects chiefly the high tones. In severe degrees of deafness, all tones are uniformly affected and the audiometric curve is horizontal. The severe auditory disturbances are usually lasting. 24 references. 9 figures. 3 tables.

2. External Ear

A New Self-retaining Retractor for Use in Endaural Surgery. J. Oliver Gooch and Henry L. Williams, Rochester, Minn. Ann. Otol., Rhin. & Laryng. 58: 293-94, March 1949.

When this retractor is used, only one modification of the usual Lempert incision is necessary. This consists in the making of superior and inferior scissor cuts in the membranous canal after the three primary incisions of Lempert, followed by elevation of the integument, have been made. The making of these two incisions in the membranous canal releases tension, so that the pull of the retractor does not dislodge the membranous canal from the bony external auditory canal prematurely.

The retractor is made so that by turning it over it may be used for either the right or left ear. The open portion of the arc of the retractor is placed ventrally. The retractor is applied in the closed position. The posterior claws are placed under the periosteum covering the mastoid portion of the temporal bone. The anterior claws are then placed under the periosteum covering the squama temporalis and the temporal muscle lying immediately cephalad to the tragus. The claws are then separated to a distance which affords the desired exposure and are locked in position by thumb-screws. A third claw is then placed under the temporal muscle, which is drawn upward. This claw is then attached to the retractor by a suitable thumbscrew and is fixed in place. This retractor has now been thoroughly tested at the operating table and has given us satisfaction. We feel that it is a definite improvement over the other self-retaining retractors which we have had an opportunity to examine. 1 figure.—*Author's abstract.*

3. Internal Ear

Developments in the Surgery of the Labyrinth. *A. Brownlie Smith, M.D., Edinburgh, Scotland.* Edinburgh M.J. 56: 255-65, June 1949.

The surgery of the labyrinth is roughly divided into two sections: 1) the surgery of labyrinth suppuration, and 2) the surgery of the non-infected labyrinth. A short general description of the surgical approach to the bony labyrinth and a summary of labyrinth surgery for infective conditions is given, dating from the operation performed by Jansen in 1893. It is suggested that operation on the noninfected labyrinth probably preceded operation on the infected labyrinth, as Kessel of Jena attempted to remove the footplate of the stapes for otosclerosis in 1876. The early history of the fenestration operation for otosclerosis is discussed and mention is made of Jenkins, who carried out the operation in London in 1913. Professor Holmgren of Stockholm first performed the operation in 1917 and has persevered in its development since then, and was associated in its development with Maurice Soudille of Nantes in the early twenties. The late Dr. J.S. Fraser of Edinburgh operated on a patient for otosclerosis in the Royal Infirmary in 1917. This patient had a stormy convalescence, but she attended a Meeting of the Scottish Otological Society in 1934, when, although she was extremely deaf, the operated ear, which originally had the worse hearing was then the better. Shortly after operating on this case Dr. Fraser operated on another, but the patient lost the hearing completely because of labyrinthitis, and Fraser abandoned further attempts at operating on a noninfected labyrinth. No further attempt was made in Edinburgh to treat otosclerosis by this means until the author operated on a case in 1937, using the technic of Professor Holmgren of Stockholm. This operation resulted in an improvement in the hearing, but as this was of very short duration, the patient had the fenestra re-opened the

following year and again seven years later, with a marked, but temporary, improvement in the hearing on each occasion. A short account is given of the modern technic of the operation, using a dental drill and an operating microscope.

The infective diseases of the labyrinth are not now usually treated by operative interference and operation on the labyrinth is largely confined to the treatment of: 1) progressive middle-ear deafness resulting from otosclerosis, and 2) Ménière's disease. The author has carried out 64 fenestration operations, 46 of which showed improvement of varying degree in the few months following the operation. A proportion lost the improvement in hearing as the result of the closure of the fenestra, and the author describes a method by which he places a tiny window frame of natural bone in the fenestra. This little window frame is obtained by cutting out, under the microscope, one of the small apertures through which one mastoid cell communicates with its neighbor. A description is given of the treatment of Ménière's disease by destruction or removal of the membranous labyrinth. At first the author exposed the lateral semi-circular canal by the post-auricular route and injected alcohol through a fistula made in the lateral canal. A case is recorded of a blind lady of 87 who had the operation done at the age of 84 and is now perfectly well apart from a loss of a sense of her position in space. Removal of the membranous labyrinth by fine forceps through a fenestra of the lateral canal is now preferred to alcohol injection, and an illustration is given of a membranous labyrinth which had been removed in this fashion with complete recovery of the patient.

In working under a magnification of 8 or 10 diameters the finest instruments appear crude, and the author hopes that, in time, labyrinth instruments will be prepared, microscopically accurate, and of microscopic finish. 9 references. 4 figures.—*Author's abstract.*

Present-day Status of Fenestration Surgery. *Leighton F. Johnson, M.D. and Hector Silva, M.D., Boston, Mass.* New England J. Med. 240: 718-20, May 5, 1949.

The first practical, considerable operation for the relief of deafness from otosclerosis was devised by Dr. Julius Lempert; major changes in the evolution of the operation are accredited to him, and its value is now generally recognized. The etiologic factors causing otosclerosis are still unknown and the pathologic factors are complex and not clearly understood, although it is known that eighth nerve deterioration is one of these. There is not sufficient evidence to prove that fenestration of the labyrinth halts the progressive degenerative changes of the eighth nerve, nor is it known if it gives a respite from deafness for ten to fifteen years, or a permanent cure.

Careful selection of patients for fenestration is made by the diagnostic use of tuning forks. In order to restore hearing to a practical level, which is 30 db., there should be a nerve response by bone conduction of 30 or

better by audiometric examination and a differential between air and bone response, the cochlear potential, of at least 25 db. Sometimes there is an unexpected and favorable response to the operation in patients with audiometric nerve response in one or more frequencies below 30 db., but this is too infrequent to justify the procedure except in rare cases. The principle behind fenestration is simple; the oval window has been invaded by the otosclerotic process, partially or completely shutting out the airborne waves from the labyrinth. The operation calls for the construction of a new window into the labyrinth through which the sound waves may pass. The execution of this is not so simple.

The evolution of the operation has been in two eras. In the first, the window was made in the external horizontal canal, the incus being left *in situ*. Results are spectacular, but within the first year two-thirds of the cases had bony closure of the fistula, and hearing dropped to the pre-operative level. In the present era, the fistula is made in the surgical dome of the vestibule, and the incus is removed. The new window is called the *novovalis*. In this location a much larger fistula can be made, and the selection of this site saved fenestration surgery from discard.

Lembert has proved that the lead burr definitely inhibits osteogenesis, and this is now used routinely. The present technic of preparing the fistula by removal of the lid in one piece obviates the production of much bone dust and thereby lessens the likelihood of bone regeneration. Certain procedures that have appeared sound in the past have reduced the percentage of successes, such as cartilaginous stopple and the use of dental excavators. The cupola technic of Lempert or the double line procedure of House seems to insure more success. Causes of failure include improper selection of cases and bony closure of the fistula. The flap should undergo careful scrutiny under magnification for the presence of bony spicules. Failure due to aseptic labyrinthitis is reduced with penicillin given routinely for five days. Other indications for success are: 1) great care in irrigation so that the membranous labyrinth is not traumatized while bone dust is being washed away from the endosteum; 2) avoidance of thermal changes to the labyrinth by excessive heat caused by the polishing burr or an irrigation solution that is too warm; 3) complete hemostasis at the time the labyrinth is opened; 4) 300,000 units of penicillin postoperatively each day, and pyribenzamine in amounts of 50 mg. four times a day; 5) cavity packed with either paraffin gauze or small sea sponges. The anesthetic recommended is sodium pentothal, starting at 0.4% to 1 Gm. or less, augmented by oxygen. This is preceded by a 2% spray of pontocaine, and sodium nembutal, usually 50 to 150 mg., for sleep.

In the author's series of cases, complications were limited to local allergic reactions to the sulfonamides, a few cases of persistent aural discharge requiring time and patience to dry up, a case of acute otitis media after operation, with spontaneous rupture (successfully treated with large doses of penicillin, and with no damage to the improved hearing), and 4 cases of atresia of the external auditory meatus, requiring excision of

scar tissue. In the experimental group of 32 patients (diminished bone conduction) at the Massachusetts Memorial Hospital, the results with the novovalis operation showed 31% of cases with practical hearing, 18% with improved hearing, 51% with preoperative hearing level, and no cases in which hearing was worse. 2 tables.—*Author's abstract.*

The Fenestration Operation—Indications, Technique and Results. *J. Brown Farrior, Tampa, Fla.* Laryngoscope 59: 515-39, May 1949.

The author presents his experience in 144 fenestration operations, outlining the criteria for the selection of patients for the fenestration operation, describing variations in surgical technic, and reporting immediate and lasting results. For the selection of patients, the author classifies otosclerosis as early, moderate, moderately severe and severe, giving the detailed audiometric and tuning-fork test findings in each type. The author concludes that the fenestration operation is indicated only in moderate and moderately severe otosclerosis with adequate retained inner ear function.

The author describes a modified Shambaugh incision. He advocates the primary elevation of the tympano-meatal flap before any bone surgery to allow time for adequate hemostasis of the canal vessels before the fenestration is made. He has found that the direct atticoantrotomy is superior to the Schwartze approach to the mastoid antrum. The fenestra is done under irrigation. He stresses the importance of primary and secondary debridement of the tympanocutaneous flap, removing all osteogenic bone dust and bone spicules from the undersurface of the flap. Of the first 100 cases, 82 have maintained useful hearing for twelve to thirty-three months postoperatively. The author emphasizes the importance of auditory training in maintaining the maximum utilization of hearing restored through the fenestration operation. 12 references. 12 figures.—*Author's abstract.*

Neurinoma of the Facial Nerve in the Parotid Gland. *John J. O'Keefe, Philadelphia, Pa.* Ann. Otol., Rhin. & Laryng. 58: 20-25, March 1949.

The literature records but 15 cases of neurinoma of the facial nerve, and all 15 have had origin in the nerve sheath within the fallopian canal. The case recorded here has the singular merit of having origin in the facial, or extracranial, distribution of the seventh nerve. Study of the cases reported shows that Altmann, in 1935, was able to identify such facial nerve tumors as specific entities, and that Bogdasarian, in 1943, furnished both a true anatomic differentiation for these tumors occurring in the various parts of the fallopian canal, and at the same time a rationale for a pre-operative diagnosis.

The present report emphasizes the fact that such tumors may occur anywhere in the course of a peripheral nerve and as such, must be included in the differential diagnosis of parotid gland neoplasms. Essentially benign, they present all the characteristics of a benign tumor except that they produce facial nerve paresis early. The development of such a paresis in association with a painless, smooth, slow-growing tumor mass anywhere in

the distribution of the facial nerve should be sufficient evidence to cause the examiner to include this type of tumor as a diagnostic possibility. Ultimate diagnosis necessarily is dependent upon the histologic study of tissue secured by biopsy.

Ultrasonic Therapy of Ménière's Disease (*Die Behandlung des Meniere mit Ultraschall*). Camillo Wiethe, Vienna. *Wien. klin. Wschr.* 61: 466-68, July 29, 1949.

Following a brief description of the technic of ultrasonic therapy for Ménière's disease, the author reports the results of this treatment in a series of 26 cases. Ten treatments are given at intervals of one or two days, during which period careful vestibular and cochlear tests are performed. Some patients show improvement after the first treatment, but in the majority no definite change is noted until after the fifth or sixth treatment. The tinnitus first shows a change in character and is then diminished. Finally, after varying intervals of time it may disappear completely. Some of the patients showed audiometric improvement of hearing. Nystagmus showed diminished duration in 20 to 30% and in one-half of the cases there was a slight shortening of the latent period. After an observation period of two to twelve months, 18 of the 26 patients had no more attacks. Six patients had occasional attacks but not nearly so frequent as before, and in 2 patients the condition remained unchanged. Tinnitus disappeared completely in 9 patients, showed marked improvement in 10, and no change in 16 cases. Subjective exacerbation was not reported in any case. The advantage of ultrasonic as compared to surgical treatment lies in the regulated depression of vestibular function and preservation of hearing. 6 references.

Tumors of the Parotid Gland. Robert W. Buxton, James H. Maxwell and Donald R. Cooper, Ann Arbor, Mich. *Laryngoscope* 59: 565-94, June 1949.

An analysis of 227 patients with primary tumors of the parotid gland, in the University Hospital between July, 1934 and January, 1949, was carried out in an effort to add a note of optimism to the prognosis. Six categories were used in classification; 113 patients had benign mixed tumors; 10 had a papilliferous cystadenoma lymphomatousum, also a benign lesion; 95 patients had carcinoma, 54 of which appeared to arise in a previously existing benign mixed tumor, while the remaining 41 were considered to be of ductal origin since there was no histopathologic evidence of benign mixed tumor. Nine had sarcomas; 120 of the 123 patients with benign tumors and 84 of the 104 with malignant tumors had these excised. Fourteen were subjected to biopsy only, and 9 patients were seen in consultation after previous operations elsewhere.

The duration of the tumor in this series varied from one month to more than twenty years. The clinical manifestations indicated that pre-operative facial paralysis and evidence of disseminated metastases are the only reliable signs of malignancy. However, many of the malignant tumors

were well encapsulated and showed no evidence of local infiltration or regional spread. It was not possible to confirm the commonly-held opinion that in each successive recurrence of an excised benign mixed tumor, the histologic structure becomes more cellular and the characteristics more malignant; rather, the indications are that time rather than surgical trauma is the important factor in the development of malignant change. There was one operative fatality in a patient with far-advanced carcinoma who died after injury to the carotid artery.

Twenty-seven patients have had one or more recurrences after operation, an overall incidence of 13.3% recurrences for all tumors. Reoperation has been performed on 9 of these patients. Of the 110 patients who had operative removal of benign mixed tumors, there have been 12 recurrences, or 10.9%; 57 are less than five years postoperative. Tabulation of five-year cures in the case of benign mixed tumors bears little significance since recurrences have been noted twenty and thirty years after excision. In the 10 patients who had excision of a papilliferous cystadenoma lymphomatosum, no recurrences have been found. Of the 50 patients who had excision of the carcinoma arising in a mixed tumor, 25 had the operation more than five years ago; 18 of these, or 72%, survived five years or more without recurrence. All of the 6 patients who had operation for removal of sarcoma arising in the mixed tumor were operated upon more than five years ago; 5 or 83% survived five or more years without recurrence. Of the 25 who had primary carcinomas removed, 11 were operated upon more than five years ago; 6, or 54%, survived five or more years without recurrence. The 2 patients with primary sarcoma of the gland were operated upon more than five years ago. One of these survived more than five years without recurrence. Therefore, of the 44 who had operations for the removal of malignant tumors of all types more than five years ago, 30, or 68.1%, survived five or more years without recurrence. Twelve per cent of the entire group with carcinoma arising in a mixed tumor and 27% of the primary carcinomas are dead after surgical resection. The primary carcinoma seems to be, therefore, the most malignant type of tumor encountered in this series.

The technic of surgical removal is described, including various methods of identifying and isolating the facial nerve. The integrity of the facial nerve should be preserved when it has not been invaded by neoplasm, as indicated by preoperative paralysis or gross evidence of infiltration at the time of operation. In the treatment of parotid tumors, x-ray therapy should be used in maximum dosage after removal of poorly encapsulated tumors, the extent of which is not clearly defined, and when total removal is in doubt. Its use alone in the primary treatment of malignant lesions of the parotid gland is rarely curative and is acceptable only when surgical removal is contraindicated.

Fifty-three patients had some degree of facial palsy postoperatively. In 23 instances this palsy was temporary, usually disappearing by the time the patient left the hospital. In 30, or 14.7%, of the 204 patients, there was some degree of permanent paralysis due, in most instances, to deliberate

sacrifice of that portion of the nerve involved by the neoplasm. In 13 (6.3%), there was accidental or unpremeditated permanent palsy. Only one of this group had complete paralysis. The majority of these accidental palsies involve only the lower lip and are of little concern to the patient. Salivary fistulas occurred postoperatively in 6 patients. All of these healed promptly without surgical treatment and all occurred in patients who had removal of benign mixed tumors. The results tabulated here seem to justify the conclusion that all primary tumors of the parotid gland should be removed surgically as soon as they are discovered unless there is metastases to distant structures. 14 references. 7 figures. 9 tables.—*Author's abstract.*

4. Mastoid

Failure of Penicillin Therapy in Mastoiditis (*Les échecs de la pénicillino therapie dans les mastoidites*). Babakr, Bordeaux, France. *Rev. de laryng., rhin., otol.* 70: 338-45, July-Aug. 1949.

This paper reports 3 cases of mastoiditis in which large doses of penicillin were given, a total dosage of 4 to 8 million units, but without relief of symptoms. In each case a mastoidectomy was done with good results. In these cases, the mastoid cavity was found to contain pus and the lining membrane showed advanced changes. In this stage of mastoiditis, it is not possible for penicillin to reach the infected area through the blood vessels in sufficient quantities to inhibit the infection. In the early stage of mastoiditis with inflammatory changes in the mucosa and mastoid cells and dilated blood vessels, penicillin therapy may be effective, but in the later stages, as represented by the cases reported, mastoidectomy is definitely indicated. In spite of the development of antibiotic therapy, surgical procedures are still important in otorhinolaryngology. 7 references.

5. Middle Ear

Latent Otitis (*Okkulte Otitis*). Karl Amersbach. *Beih. Zschr. f. Hals-Nasen- u. Ohrenhkl.* 1: 394-98, July 1949.

With reference to the question as to whether otitis plays a part in the etiologic changes of infantile digestive disturbances, it is emphasized that otoscopy and x-ray may not reveal inflammation of the ear. Even puncture of the antrum fails in diagnosis frequently. In spite of the fact that many otologists hesitate to admit the relationship between these two conditions, the fact remains that paracentesis frequently is followed by improvement, even though transitory, of the digestive disturbance. As a rule, antrotomy will be necessary. The author has operated on 65 patients in three years. In one-third of these the otoscopic findings were positive, in two-thirds negative. Antrotomy was performed notwithstanding. Occasionally there appeared to be only a marked hyperemia with slight inflammatory changes, but frequently no such changes could be demonstrated. Two cases indicated to what degree such hyperemia could influence decalcification of the bones. The author believes that the term "mastoiditis" should not be limited to cases

with actual liquefaction. Even though this type of otitis may not be the primary cause of digestive disturbances, its presence may have a determining effect on their course. Unless the focus of infection is removed, the intoxication persists. It is suggested that the hyperemia is caused not only by congestion but actually constitutes the initial stages of an acute inflammation.

In 75% of the cases with negative otoscopic findings, operation revealed inflammatory changes ranging from mild degrees to bone destruction. In the cases with positive otoscopic findings, operation frequently revealed no retrotympanic inflammation.

In many cases, exposure of the mastoid antrum in spite of negative otoscopic findings revealed severe inflammation in the retrotympanic space, frequently with histologic evidence of osteomyelitis. Operation frequently was followed by prompt recovery. Of the series of 65 cases, 41 recovered and 24 died. Some of these patients were operated on in advanced stages of the disease, and a successful outcome could hardly be expected. The operation consisted of bilateral opening of the mastoid antrum, with removal of periantral pneumatic or osteomyelitic foci. In these cases the decision to operate is up to the pediatrician.

A New Treatment of Acute Aero-Otitis Media. *Bernard C. Trowbridge, Kansas City, Mo.* Arch. Otolaryng. 50: 255-63, Sept. 1949.

Acute aero-otitis media is a sterile middle ear inflammation which is frequently seen in military flying personnel due to the effects of varying atmospheric pressure on the tissues of the middle ear. The increase in commercial aviation has made this condition an increasingly common occurrence among civilian passengers. The symptoms of acute aero-otitis are usually mild in character. The condition is characterized by a fullness in the ear, with mild discomfort and a loss in hearing. The patient most often complains of "something" moving about in the ear. The symptoms are the result of an accumulation of sterile fluid in the middle ear cavity which may spill over into the mastoid cells. Spontaneous drainage of the entrapped middle ear fluid does not occur, due to the collapsed eustachian tube and the location of the tubal opening high in the middle ear cavity.

Drainage of the fluid from the middle ear cavity is essential to restore hearing and to prevent the formation of secondary connective tissue processes which will permanently disturb middle ear function. Inflation and catheterization are inadequate and do not drain the middle ear satisfactorily. Aspiration of the middle ear by a 3 inch No. 22 spinal (Quincke point) needle attached to a 1 cc. tuberculin syringe affords the most efficient means by which to drain the fluid and to restore normal function in the shortest convalescent period. 4 references. 5 figures. 1 table.—*Author's abstract.*

(Myringotomy for this condition has been advocated for several years

—ED.)

Ventilation Paracentesis for the Relief of Stubborn Eustachian Tube Blockage. *John G. McLaurin, Dallas, Tex. Laryngoscope* 59: 482-01, May 1949.

The author gives a brief history of the various attempts that have been made since the seventeenth century to restore hearing by the removal of large or small portions of the ear drum. He calls attention especially to the work that was done by Astley Cooper, who recommended removal of portions of the ear drum in an effort to relieve firm, irremovable strictures and adhesions in an eustachian tube. He explains further that these efforts of Astley Cooper were abandoned later because of the great amount of damage done by removal of large portions of the drum, and that the temporary improvement of hearing was followed by a greater degree of deafness than existed prior to his operation. Some of the more important points in the anatomy and histologic factors of the ear drum, tympanic cavity and the eustachian tube are discussed to show how a chronic blocking of the tube can develop and not be relieved by methods of inflation and bougienage.

The term "ventilation paracentesis" is one that the author has adopted to describe his operative procedure in about 92 cases since January, 1925. By ventilation paracentesis he means that an opening is made through the drum into the middle ear in order to permit air to get into the tympanic cavity and to have a satisfactory effect in helping to keep the eustachian tube open. He recognizes the fact that the term "ventilation paracentesis" ordinarily means a surgical procedure for draining fluid from a cavity. Prior to 1925, he had never done a paracentesis for the distinct purpose of creating patency in stubbornly-blocked eustachian tubes. He adopted this plan because he had observed that it was rare to find an eustachian tube closed if there was a perforation in the ear drum, regardless of what produced it. The only instances in which the tube would be blocked when the drum was open were: 1) a tumor in the pharynx, whether benign or malignant, that obstructed the eustachian tube; 2) where a very firmly formed stricture had developed in the tube, usually at the isthmus, probably resulting from a rather violent infection that had ascended the eustachian tube from the pharynx; 3) where there had been an adhesive type of middle ear infection that had created adhesions of the ear drum to the inner wall of the tympanum in such a way that the tympanic orifice of the tube did not open into that part of the middle ear chamber that was ventilated by the opening in the drum.

In the 92 cases where ventilation paracentesis had been done, the author has found that in 9 out of 10 instances, as soon as the drum was incised, the eustachian tube would inflate easily with moderate air pressure, even though it had been difficult or impossible to inflate the tube prior to that time. He has stressed the importance of keeping the ear drum open long enough for the mucosa lining the eustachian tube to return to a normal state, so that when the drum is finally permitted to close the tube would remain open. In many of these cases, it was highly important to cor-

rect any glandular imbalance, especially the administration of thyroid extract where indicated to make efforts to control allergy that existed in a fairly large percentage of the cases, and to correct nasal septal deformities and secondary sinus infections by surgery and treatment. In some cases, the removal of chronically infected tonsils was definitely indicated.

In some instances, one single opening of a drum would suffice for the tube to remain open a sufficient length of time to start on its road to final recovery. However, it was more frequently necessary to open the drum a number of times to bring about a final patency of the tube after the drum was permitted to close. Prior to the opening of the drum, the patient on whom ventilation paracentesis was done complained of the following symptoms: 1) loss of hearing in varying degrees; 2) autophony; 3) tinnitus; 4) vertigo, in some instances associated with nausea and vomiting if the vertigo is marked. The vertigo was seen in fewer cases but this symptom was relieved most quickly by the paracentesis. The author explains the condition that existed prior to the paracentesis as probably having developed from some acute infection, virus disease, or allergy that had produced what might appear to have been a catarrhal otitis media. The blocked eustachian tube did not open after the acute trouble subsided. As the result of the tubal blockage, a partial vacuum developed in the middle ear, extending through the aditus to the mastoid antrum and involving all the mastoid cells to some extent. As the result of this partial negative pressure, an edema was probably produced in the lining membrane of the middle ear and the mastoid cells, as well as the outer portion of the eustachian tube. This swelling was capable of interfering with the free movement of the ossicular chain and producing a certain amount of deafness by the swelling around the footplate of the stapes at the oval window. The vacuum in turn produced a definite tug on the membrane of the eustachian tube at the point external to the constricted part, thereby intensifying the tightness of the tube. Unless this vacuum could be broken by air getting into the middle ear, a vicious cycle would be established. In other words, the blocked eustachian tube created a vacuum which increased the tightness of the tube.

The essential points in the anatomy of the ear drum were shown with lantern slides to explain why certain types of incision were best for producing this so-called ventilation paracentesis. The audiograms on two cases were shown, indicating the type of relief that could be expected. The conclusions are that: 1) ventilation paracentesis has proved to be valuable in relieving stubbornly-blocked eustachian tubes that did not respond satisfactorily to dilatation, inflation and other local measures, as well as to therapy to improve the general health of approximately 92 patients; 2) the procedure is a safe one and the drum will invariably close, with no apparent damage to it. The drum should finally be permitted to remain closed when the tube regains a healthy state; 3) as a rule, there will be an improvement in air-conduction hearing, relief of autophony, control of vertigo if of a type that is associated with tubal blockage, and relief or some improvement of a co-existing tinnitus. 9 references. 5 figures.—*Author's abstract.*

Chorda Tympani Nerve Graft. *Samuel Rosen, New York, N. Y. Arch. Otolaryng.* 50: 243-48, Sept. 1949.

In order to protect the membranous labyrinth from the superimposed tympano meatal flap, the author avulsed the chorda tympani nerve from its attachment to the facial nerve and covered the fenestra with it. The chorda tympani nerve pedicle graft thus acted as the first line of defense and is a shock absorber, thus protecting the delicate labyrinth. The chorda tympani is eminently suited for this role as it successfully withstands all degrees of surrounding inflammation and suppuration in the middle ear. Following the use of the chorda tympani graft as described above there was: 1) earlier postoperative recovery of hearing; 2) significantly better hearing average than hitherto reported, which has been maintained for over a year following fenestration. 4 references. 1 figure. 2 tables.—*Author's abstract.*

Tympanic Body Tumours in the Middle Ear. Tumours of Carotid Body Type. *Nils Lundgren, Lund, Sweden. Acta Oto-laryng.* 37: 367-79, Aug. 1949.

Hitherto only three descriptions have been given of tumors of carotid body type arising from the glomus at the bulb of the jugular vein. The author portrays 4 cases of his own and discusses 9 cases described by other authors under the name of different tumors, which, judging by the histologic picture, ought to be classed among tumors of carotid body type. The designation "tympanic body tumor" is suggested for this type of neoplasm. The pathologic picture is characterized by the extremely slow growth of the tumor. The tumor grows from the bulb of the jugular vein into the middle ear and causes a gradual impairment of hearing and increasing tinnitus. Ear-ache and vestibular symptoms are rare. The tumor may grow from the middle ear through the tympanic membrane and will then appear in the external auditory canal as an ordinary polyp, which, like the tumor itself, will bleed excessively if traumatized. It may, however, also grow in the opposite direction and destroy parts of the cell system in the mastoid process, sometimes with consequential facial palsy, and it may spare the labyrinth but nevertheless grow into the petrous bone. It is histologically benign and has a strong tendency to recur, but it does not metastasize. Due to its tendency to recur, it should be borne in mind at operation that the tumor originates from the glomus at the jugular bulb which, if radical removal is to be assured, ought to be removed or coagulated. Because of the histologic picture of the tumor, one might, in selected cases, restrict the primary intervention to a radical mastoidectomy with removal of the tumor. The tendency of the tumor to return makes it absolutely necessary for the patient to be reviewed at regular intervals for a long postoperative period. 20 references. 4 figures.—*Author's abstract.*

Blast Injuries to the Ear. The Texas City Disaster. George S. McReynolds, Frederick R. Guilford, and Gaylord R. Chase, Galveston, Texas. Arch. Otol. 50: 1-8, July 1949.

One hundred and forty-three patients who had been subjected to the blast in the Texas City disaster were examined and kept under observation. Of the group, 77 sustained traumatic perforations of the tympanic membrane, 63 or 81% were within 100 yards (92 M.) of the source of the blast. Any object which was between the person and the source of the blast offered protection against the positive phase of the blast wave. Of the group that received perforations, only 2 were inside the building. In 91 ears of the persons who were either outside or unprotected, no evidence of perforation was present; 75% of these were 100 yards or more from the source of the blast. The remaining 118 were protected by some structure which succeeded in dampening the concussion more. Of the patients kept under observation, only 11 perforations had not healed at the end of thirty days. Treatment consisted of parenteral penicillin. Locally, the canals were cleansed with sterile instruments and then dusted lightly with sterile sulfadiazine powder. This dusting of the canal and middle ear was continued daily for four to six days. In no instance was irrigation used or other medicaments instilled. 6 references. 3 charts.—*Author's abstract.*

RHINOLOGY

1. General

Frontal Osteomyelitis. Its Treatment and Some Experimental Observations on the Effect of Heparin in Combination with Sulphonamide and Penicillin Therapy. G. Herberts, Uppsala, Sweden. Acta Oto-laryng. 37: 321-33, Aug. 1949.

A short description of various aspects of osteomyelitis is given. Six cases of frontal osteomyelitis and one of osteomyelitis in os maxillae with complications are reported. A review is given of the publications of the last years regarding this question. The pathologic-anatomic basis and the importance of the antibiotics in the therapy and of the chemotherapy are particularly discussed. In Mosher's opinion, an infective thrombophlebitis seems to be of special importance in the pathogenesis for the rapid spread to the periosteal and endosteal tissue with subperiosteal and epidural abscesses as a consequence.

In order to understand the evolution of the therapeutic, and particularly the surgical measures, it is important to take into consideration the results obtained during the pre-chemotherapeutic era. Besides the prophylactic experiences collected—avoiding operation in an acute infected nose and the opening of spongy bone tissue—the following points of view are of special importance: 1) early and best possible drainage; 2) a careful search for epidural abscess; 3) in case of already formed osteomyelitis, a primary large resection deep into healthy tissue.

With the start of the sulfa therapy, the possibility of avoiding the primary large resection was pointed out from several authors, while the demand for good drainage still remained. Many cases with good results in this respect have been published. The use of sulfa therapy, in order to bring the infection under control before operation, failed. Several unsuccessful cases have been published. The first case in this report had a fulminant course in spite of great local and general sulfa therapy, early operation and widespread resection. The patient died of intracranial complications. The introduction of penicillin in the therapy had excellent results. The good effect of penicillin on inflammatory bone processes could also be noticed in these cases. Several authors have shown that it is possible to avoid resection and perform only simple surgical measures, consisting of drainage and removal of sequestered bone. The author's last three cases exemplify this. The superiority of penicillin to sulfa drugs in these cases is discussed. Among earlier experiences, the capacity of penicillin for penetrating fibrin substrates can be mentioned (Nathanson and Liebhold).

From his own experiments, the author concludes that: 1) penicillin, in contradistinction to the sulfonamides, is not bound to the plasma proteins; 2) penicillin is able to penetrate a blood coagulum, whereas the sulfonamides are unable to do so; 3) the bacteriostatic effect of the sulfonamides is increased with the addition of heparin, if tested on a substrate containing blood. This effect is less pronounced in the case of penicillin.

As mentioned above, an infective thrombophlebitis is the most important factor in the pathogenesis. The difference in effect between sulfa drugs and that of penicillin may be explained by these experimental results. Our successful clinical experiences with anticoagulation therapy combined with sulfa drugs and penicillin in manifest thromboses in the large venous sinuses (cavernous and sigmoid) also seem to verify this opinion. The results were very satisfactory with this therapy in the last 2 cases reported. One of these cases had an osteitic process in os maxillae, cavernous thrombosis and meningitis. Despite combined surgical measures, and penicillin and sulfa therapy according to the usual methods, we were unable to control the infection until anticoagulation therapy had brought about an appreciable fall in the prothrombin index (to less than 20). This form of combined therapy should also be used in other severe infections with impaired blood supply to the vessels, even in cases without larger thromboses, such as mastoiditis and meningitis. 23 references.—*Author's abstract.*

Repair of Defects in Ethmoid and Frontal Sinuses Resulting in Cerebrospinal Rhinorrhea. *Alfred W. Adson and Alfred Uihlein, Rochester, Minn.* Arch. Surg. 58: 623-34, May 1949.

The authors call attention to some of the etiologic factors responsible for the spontaneous development of cerebrospinal rhinorrhea. The method employed in closing defects in the cribriform plate of the ethmoid bone

that are congenital in origin or the result of bullet wounds is outlined also; finally, a review of the results of the authors' surgical experience in cerebrospinal rhinorrhea is presented.

A skull fracture that extends through the posterior wall of the frontal sinus or the cribriform plate of the ethmoid bone, with accompanying tears of the dura and arachnoid, is the most common cause of cerebrospinal rhinorrhea. The incidence of the condition is 2 to 5% in skull fractures. The authors say that many of these conditions heal spontaneously, with complete remission of the rhinorrhea. However, persistent rhinorrhea or the delayed occurrence of rhinorrhea usually is due to considerable loss of bone, absorption of a fragment of bone or inclusion of the dura and arachnoid between fragments of bone. The only symptom of which many of these patients complain is an annoying watery discharge from either nostril which may be continuous or intermittent. The discharge usually appears as drops of clear fluid, although occasionally a regular stream of this clear liquid may run from the nose when the head is tilted in certain positions.

A serious complication of cerebrospinal rhinorrhea is extensive meningitis. Many surgeons stress that if rhinorrhea does not disappear within four to six months after the time of injury, active surgical repair of the meninges should be carried out. In the authors' experience, if spontaneous recovery from cerebrospinal rhinorrhea is to take place after fracture of the skull, it will do so within a few days to eight weeks. Therefore, a policy has been outlined to limit the intake of fluid to 1,500 cc. per day to decrease the output of cerebrospinal fluid, to administer chemotherapy with penicillin, sulfanilamide or sulfathiazone, and to have the patient remain in bed in a semi-erect posture, either awake or asleep. If conservative, non-operative measures do not effect spontaneous remission of the rhinorrhea, the authors advise the procedure developed by Adson.

Adson has used several accepted procedures with varied success; the major difficulty in any of these procedures is the freeing of the dura from the cribriform plate. This prevents carrying out the proper overlapping of the dura which is necessary for thorough invagination of the meningeal fistulous tract. This failure prompted Adson to develop the operation employed in cases of chronic rhinorrhea. The procedure consists of bilateral transfrontal craniotomy, which is designed in such a manner that it will allow the dura to be elevated from the bone in both halves of the floor of the frontal fossa. The bone flap must be designed so as to extend across the midline and to uncover the anterior poles of both frontal lobes. A coronal scalp-flap incision is employed. The skin incision is placed in the hairline, after which the scalp and periosteum are reflected forward to a line just above the frontal sinus. Six trephine openings are made, two of which are placed on each side of the midline just above the frontal sinus and two just anterior to the coronal suture. Two more openings are placed in the temporo-frontal region, one on each side. With the Gigli saw, the bone flap is elevated. The dura and frontal poles have now been

sufficiently exposed so that the frontal lobes and the dura over the floor of the anterior fossa can be elevated readily. If the longitudinal sinus is injured, it can be tied safely between fishline silk sutures to control bleeding. The advantage of ligation of the longitudinal sinus is that it allows the dura to be sutured into and, if necessary, to be used in closure of the fistulous tract. The dura is then elevated until the anterior crest of the sella turcica is approached. Frequently it is necessary to sacrifice the olfactory nerves to expose the olfactory grooves. During dissection, the fistulous tract is always encountered, whether it is situated on the right or the left side. The meninges will be seen to extend into the defect of the frontal sinus or the cribriform plate. After mobilization of the dura and after the fistulous tract has been identified, plastic closure of the tract is first begun by overlapping of the dura so as to invaginate the meningeal portion of the fistula. The first sutures of continuous chromic catgut (no. 0) are placed in the most dependent part of the elevated dura. The primary line of suture is protected by a strip of muscle which is transfixed to the dura. It is reinforced by the placing of a second row of interrupted silk sutures. The defect in the frontal sinus or cribriform plate is filled with Horsley's bone wax. On top of this first layer of wax a piece of tantalum is fashioned, to fit across the cribriform plate, and is placed. The plate is intentionally perforated to encourage the wax to run through these openings so as to lock it in place and prevent it from slipping. A second layer of wax is then placed over the top of the plate. To fix the plate even more securely, the electrosurgical unit is used to heat the plate, and then the melting wax will assist in fixing the plate into secure position.

Data concerning the operated patients are summarized briefly. Eighteen patients for whom operation was performed had spontaneous cerebrospinal rhinorrhea. There were single fistulous openings in 10 cases. Two or more fistulous openings were observed in 8 cases. Nasal polyps were observed by otolaryngologists in 11 cases. Twenty-six patients were operated on by the technic described for cerebrospinal rhinorrhea. In 8 of these the rhinorrhea was of traumatic origin. All 8 patients recovered. In 18 cases, cerebrospinal rhinorrhea developed spontaneously, without a history of injury. Fourteen of these patients have recovered. In 3 cases the operation was a failure, and in 2 of these re-operation was again followed by failure. The result in the other cases has been equivocal since the patients have gone for many months without the appearance of cerebrospinal fluid in the nose, and when it does appear there are only a few drops. In the 3 operative failures just mentioned, re-operation in 1 of these revealed a second fistulous opening in the dura, meninges and cribriform plate which had been overlooked at the first operation. In 2 of the 3 failures, re-operation was again followed by failure, and it is the authors' belief that failure probably resulted from the fact that the openings into the cribriform plate were not completely cleaned of meningeal membranes, so that their subsequent swelling dislodged the bone wax and rhinorrhea recurred. 10 references. 6 figures. 1 table.—*Author's abstract.*

Rare Case of Injury to the Left Maxillary Sinus and Orbit (*Eine seltener Fall von Verletzung der linken Oberkieferhöhle und Augenhöhle*). Richard Schönfelder. *Klin. Monatsbl. f. Augenhk.* 114: 542, 1949.

A boy 11 years of age suffered a fall into a bush and received an injury of his left maxillary sinus, causing an outward displacement of his left eye. A fistular wound was discovered right below the left inner canthus leading into the maxillary sinus. Exploration revealed 8 splinters of wood in the sinus and orbital cavity, 10 mm. thick and from 10 to 20 mm. long. Immediately following their removal by the oral route, the eye returned to its normal position. The wound healed by primary intention, leaving a normal function of the eye.

Functional and Anatomic Relation of Sphenopalatine Ganglion to the Autonomic Nervous System. David Higbee, *San Diego, Calif.* *Arch. Otol.* 50: 45-58, July 1949.

The function of the sphenopalatine ganglion in relation to pain is controversial, and a review of the anatomy of the nervous system is presented to support a conclusion that is contrary to accepted opinion. The fifth cranial nerves conduct sensory impulses to the nasal mucosa, whereas the parasympathetic nervous system relays vasodilator and secretory impulses, and has no functional relation to the fifth nerve. The sphenopalatine ganglion is associated with the parasympathetic nervous system and is functionally independent of the sympathetic nervous system. Its function is to make adjustments to atmospheric conditions and constitutional states to maintain normal nasal membrane. Stimulation of the sympathetic nerve fibers produces vasoconstriction, but the parasympathetic nervous system has a low threshold for stimulation.

The conclusion from these studies is that, in syndromes of vidian neuralgia and sphenopalatine ganglion neuralgia, injections of alcohol or cocaine do not reach the ganglion, but only the region of the sphenopalatine foramen. Actually, cessation of pain is caused by the effect of the injection on the fibers of the fifth nerve. Injection into the ganglion is unwise due to the risk of injury to the maxillary nerve which can cause degeneration of the nerve and paralysis of the nasal mucosa. 10 references. 7 figures.

Local Nasal Therapy with Pyribenzamine in Seasonal and Nonseasonal Hay Fever. Emanuel Schwartz and Harry Leibowitz, *Brooklyn, N. Y.* *J. Allergy* 20: 269-72, July 1949.

This report deals with the local nasal therapy with 0.5% isotonic buffered solution of pyribenzamine hydrochloride in a group of 100 patients having either seasonal or nonseasonal hay fever. For continuous symptoms, three to four drops were instilled in each nostril four times daily, and for intermittent symptoms, only as required. None of the patients received oral antihistaminic therapy at this time.

Of 60 patients with seasonal hay fever, 52 or 86.7% experienced symptomatic relief. Of this number, 48 had satisfactory relief and 4 had only slight relief. Eight or 13.3% had no relief. Of 40 patients with

nonseasonal hay fever, 27 or 67.5% were relieved. Of this number, 24 had satisfactory relief and 3 had slight relief. Thirteen patients, or 32.5%, had no relief. The overall picture for both types was 79.0% relief and 21.0% no relief. Of 100 patients, 79 were relieved and 21 were not. Thirty-eight per cent complained of a burning sensation of the nose or throat, or both. Three discontinued the use of pyribenzamine nose drops because of marked burning of the nose and throat. In one patient it initiated a severe cough which was soon followed by an asthmatic attack. In another case, the nasal obstruction was increased. The burning sensation lasted in the average patient from one to three minutes and then suddenly disappeared. In most patients, when the drop method was changed to a nasal spray, the burning sensation was decreased or eliminated. Usually, relief was almost immediate and lasted from one-half hour to four hours. The symptoms of watery nasal discharge, sneezing and itching of the nose responded more readily than the nasal obstruction. None of the patients experienced any systemic toxic reactions. However, it should be emphasized that the local application of 0.5% pyribenzamine to the nasal mucosa is solely palliative. Nasal symptoms recur after withdrawal of the drug. Local therapy is not a substitute for the determination of the etiologic factors, the elimination of the offending allergens and hyposensitization. 3 references.—*Author's abstract.*

Isopropylnoradrenaline Inhalation and Mucous Membranes. *H. Herxheimer and R. H. D. Short, London, England. Brit. J. Pharmacol. 4: 311-12, Sept. 1949.*

Twelve rabbits were subjected to aerosol inhalation of isopropylnoradrenaline (aleudrine) in concentrations from $\frac{1}{4}$ to 1%. The inhalation was carried out by means of a pressure aerosolizer and lasted ten minutes every day for up to 73 consecutive days. No pathologic changes were found at the histologic examination of bronchi and trachea, and there were no differences between the animals so treated and the control animals who inhaled physiologic saline. Earlier evidence which appeared to show that adrenaline inhalation was injurious to the mucous membranes is reviewed critically and it is concluded that there is no evidence to show that isopropylnoradrenaline is harmful if used as inhalation. 5 references.—*Author's abstract.*

Iontophoresis of Pyribenzamine in Allergic Rhinitis.* *Theodore H. Aaron, M.D., Edmonton, Canada. Canad. M. A. J. 61: 301-03, Sept. 1949.*

Nasal metallic ionization has been used in the past to cause aseptic inflammation with fibrosis, decreasing the absorption of antigen and inhibiting the resultant nasal edema of hay fever. Aaron and Abramson have shown that pyribenzamine can be deposited in the skin by means of iontophoresis and can inhibit histamine whealing for at least twenty-four hours after its introduction. Aaron, Peck and Abramson showed that obstinate cases of pruritic dermatoses obtained definite relief when treated by the iontophoresis of pyribenzamine. The author's method in the nasal ion-

tophoresis of pyribenzamine in allergic rhinitis was to use a 5% solution of pyribenzamine hydrochloride absorbed in cotton wrapped about the positive electrode, and a current of 3 ma. for a period of five minutes. No discomfort except a slight tingling was experienced. Five cases of allergic seasonal hay fever and 2 cases of allergic perennial rhinitis that had not benefited from both hyposensitization injections and antihistaminic drugs, obtained relief from about one to four days by this method. One case of vasomotor rhinitis was treated without success. Saline controls were used. It is suggested that relief was due to the deposition of a high concentration of pyribenzamine in the nasal mucosa. 5 references.—*Author's abstract.*

- * Pyribenzamine was kindly supplied by Ciba Pharmaceutical Products Inc., Lafayette Park, Summit, N. J.

2. Nasal Sinuses

Sinusitis, Allergy and Bacterial Vaccine. *K. A. Baird, St. John, New Brunswick, Canada.* Ann. Allergy 7: 339-45, May-June 1949.

During the past twenty years, the author has had successful results in the treatment of hundreds of unselected cases of infectious and allergic sinusitis with large doses of sensitized mixed vaccine (17,000 million organisms, or more). He used the Sharp and Dohme preparation *H. influenza Serobacterin Vaccine Mixed* (no. 4750), giving smaller doses at intervals of 3 days and the larger doses at intervals of 5 to 7 days. The vaccine was administered subcutaneously, at the intervals mentioned, in the following doses: 0.2 cc; 0.4 cc; 0.8 cc; 1.2 cc; 1.8 cc. and 2.5 cc. In stubborn cases, the dose of 2.5 cc. might have to be repeated several times at intervals of 1 to 4 weeks. In some cases, even 3 cc. would be required to obtain optimum results. The bacterial allergen is the only one that increases in quantity within the body. This explains the favorable effect of vaccinothrapy combined with medical drainage. Five cases are described in detail. The local reaction to the injection of the vaccine consists of an area of reddening the size of a quarter. If a more severe local reaction occurs, the last dose should be repeated before increasing the dose. The general reaction is very slight as a rule. If a chill or sensation of "flu" occurs, repeat last dose before increasing the dose. 15 references.

Conservative Treatment of Maxillary Sinusitis (*Die konservative Behandlung der Sinusitis maxillaris*). *Herbert Greven, Düsseldorf.* Beihefte z. Zischr. f Hals-, Nasen- u. Ohrenhkl. 1: 398-401, July 1949.

It is claimed that continuous irrigation of the maxillary sinus with penicillin solution in cases of chronic empyema may lead to cure even in the presence of roentgenographically demonstrable hyperplastic changes of the mucosa. When this method fails, it is usually due to the presence of

osteomyelitic changes in the bony tissues or mucosal changes of dental origin. In cases in which the infection was due to penicillin-sensitive organisms, the penicillin irrigations had a bactericidal effect, secretion was checked and the mucosa returned to normal. Failure must be anticipated if dental foci are not removed and in the presence of irreparable lesions of the mucosa of the sinus of polypoid cystic or fibrous type. Such changes are easily demonstrable by contrast filling with iodipin or lactobaryte. The treatment is also futile in the presence of bone destruction, perforation or osteomyelitis. Such complications require surgical treatment. Penicillin-resistant infections are not amenable to this treatment. The types of infection responding best are those due to gram-positive staphylococcus, streptococcus and pneumococcus.

A Lichtwitz needle is introduced through the anterior nasal passage into the sinus, the secretions are washed out, and a ureteral catheter is passed into the sinus and left *in situ* for the duration of the treatment. Every three hours, 20,000 units of penicillin are injected, the patient inclining his head to one side. According to the type of bacteria, the course of the infection and the condition of the secretion, from 1 to 2 MEGA of penicillin are injected. In one patient, chronic maxillary sinusitis of many years' duration responded to this treatment. Good results were obtained in all but 5 cases. In 37 cases, a retrogression of the hyperplastic mucosa could be demonstrated. The cases were followed up from six to eight months to a year and no recurrences were noted. This conservative method is recommended in particular for young patients in whom a mutilating operation might affect dentition. Four of the patients in the present series were from 4 to 6 years of age. In the 5 cases which failed to respond to the conservative treatment, a Denker radical operation was performed, revealing polypoid cystic changes of the mucosa, osteomyelitic changes and partial epithelial metaplasia. 9 references. 1 figure.

Maxillary Sinusitis in Children. A Treatment Technique. R. H. von der Borch, N. Adelaide, S. Australia. Clinical Reports Adelaide Children's Hospital 1: 216-17, May 1949.

The frequency of maxillary sinusitis in children is emphasized, and a method of treatment advocated which is simple, safe and expeditious. This is undertaken at the same time as tonsillectomy is done, and in the same "head back" position with Davis-Boyle bag. Briefly, the method is the introduction of especially-prepared self-retaining rubber or plastic tubes into the antra, through which treatment can be undertaken, using penicillin or other solutions for the appropriate time. It is pointed out that many children undergoing tonsillectomy for repeated "colds", have in fact, coincident sinusitis which should be treated at the same time.—*Author's abstract.*

Prerequisites for Spontaneous Involvement of Eyelids and Orbits in Diseases of the Accessory Nasal Sinuses (*Voraussetzungen einer spontanen Beteiligung von Lidern und Orbita bei den Erkrankungen der Nasennebenhöhlen*). M. Schwarz, Karlsruhe. Klin. Monatsbl. f. Augenhk. 114: 535-41, 1949.

Palpebral edema, chemosis, abscess of the eyelid, fistula, protrusio bulbi and orbital phlegmon, as well as diplopia and visual disturbances are frequently associated with sinus disease. The orbit and eyelid are involved in sinus disease in 1% to 6.9% of cases, or five times as frequently as in benign tumor and three times as frequently as in malignant tumor. Inflammatory diseases are more common in young subjects, the neoplastic conditions in the older age group. Among the anatomic factors responsible for the involvement of the lids and orbits in sinusitis may be mentioned the small perforating veins passing through the lamina papyracea and the lymph vessels. The orbit and ethmoid sinus are connected through the ethmoid foramen, and the sphenoid sinus and postethmoid cells through the optic foramen. A bony dehiscence plays only a minor part in the spread of infection, and was demonstrated in only 0.45% of cases. In 64 cases of infection of the orbits and eyelids seen at the Frankfurt Clinic from 1936 to 1946, primary acute disease of the nasal sinuses was demonstrated in 46.3%, acute exacerbations or acute recurrences of chronic disease of the sinuses in 31.7%, and chronic sinusitis in 22%. Chronic inflammation produces a rarefying osteitis; contact infection produces a necrotic osteitis. There occurs a perivascular and perineural as well as thrombophlebitic extension of the infection. Benign tumors may cause displacement of tissues with resulting obstruction, and malignant tumors lead to neoplastic infiltration and osteoclasia. Besides the natural avenues of extension, also newformed paths in the bones may be demonstrated roentgenologically. Mechanical factors such as fracture, dental empyema, gravity, and swelling of the mucosa may be involved, as well as pneumocele or mucocoele, and surgical mutilation, involving displacement of the nasofrontal duct or one of the ethmoid ostia.

Pressure by tumors may cause stasis of orbital veins with edema of the lids or exophthalmos. Immediate swelling of the eyelid following traumatic injury upon attempting to blow the nose indicates fracture of the lamina papyracea, or of the base of the frontal sinus, or vault of the maxillary sinus. It is emphasized that other constitutional factors, such as individual variation in the development of the cranial sinuses, inherited susceptibility of the mucosae and individual peculiarities of the mesenchyme may play a part. Palpebral edema, protrusio bulbi, phlegmons and abscesses are more common following acute sinusitis, while fistula occurs more frequently following chronic sinusitis. 20 references.

3. Surgery

Cysts of the Nasal Vestibule. *Fernand Montreuil, New York, New York.* Ann. Otol., Rhin. & Laryng. 58: 212-19, March 1949.

This is a report of three cases of cyst of the nasal vestibule, the main purpose of which is to bring this benign condition to the attention of otolaryngologists. The symptoms and differential diagnosis are discussed. Treatment is easy removal via incision through an oral approach. 45 references.—*Author's abstract.*

Congenital Choanal Atresia: A New Transpalatine Technic. *David A. Dolowitz and Edward B. Holley, Salt Lake City, Utah.* Arch. Otolaryng. 49: 587-93, June 1949.

A review of the literature shows that successful surgical repair of congenital choanal atresia is quite rare. Failure has almost always been due to a secondary scar formation closing the opening. It was felt that maintenance of the normal physiologic features of the nasal mucous membrane was disregarded in favor of trying to establish a fistula by means of skin grafts, prostheses, or repeated cauterizations. Believing that the absence of a ciliated epithelial lining predisposed to the scar formation, a new approach to the problem is described in which the obstructing bone was removed by a transpalatine technic and the newly formed nasal passageway is lined with flaps of ciliated mucous membrane. A case is reported in which this technic was used. The patient experienced entire relief of her nasal complaints since the operation 32 months ago. 11 references. 2. figures.—*Author's abstract.*

LARYNGOLOGY

1. Larynx

Laryngeal Tuberculosis and Laryngeal Syphilis (*Kehlkopftuberkulose und Kehlkopflues*). *Rudolf Schmiedell.* H. O. Beih. Zschr. f. Hals-Nasen- u. Ohrenhkl. 1: 401-03, July 1949.

From 1946 to date the author has treated 404 cases of lupus and 219 cases of laryngeal tuberculosis. Since vigantol yielded such excellent results in the treatment of lupus, it was decided to try this treatment in cases of laryngeal tuberculosis that offered no contraindications in the form of pulmonary changes, and in which the laryngeal granulations resembled those observed in lupus. The results, although not so striking as in lupus, were often good. The number of cases treated was too small to permit of any conclusions. Attention is drawn to the difficulty in differential diagnosis between tuberculosis and syphilis of the larynx. In 5 syphilitic patients in the present series there were typical clinical symptoms of tuberculosis with repeated histologic confirmation. From 1 to 3 negative WaR tests were obtained in each case. All of these patients denied venereal infection. The only finding that seemed extraordinary for laryngeal tuberculosis was the absence of roentgenographic pulmonary changes. The author concludes that, in cases of isolated tuberculosis of the laryngeal mucosa even when confirmed histologically and in spite of a negative WaR test, antisyphilitic therapy is justified. 3 references. 2 figures.

Analysis of Experiences in the Treatment of Laryngeal Tuberculosis With Domagk's Tb I 698 E (*Nachprüfung von Erfahrungen in der Behandlung der Kehlkopftuberkulose mit Tb I 698 E von Domagk*). Ernst Stutz. Beih. zur. Zschr. f. Hals- Nasen- u. Ohrenhkl. 1: 403-405, July 1949.

During the period of 1947 to 1948, the author treated 41 cases of laryngeal tuberculosis with Domagk's Tb I 698 E. Of these, 11 are still under treatment, 16 have been cured, 2 were lost from sight and 12 are dead. The present study was made to ascertain whether the doses employed guarantee clinical macroscopic healing for any considerable length of time, and whether recurrences should be considered as of local origin, or due to the primary pulmonary process, general condition of the patient or inadequate dosage. It was also attempted to determine which cases respond best to this treatment. The dosage was at first reduced owing to the danger of accelerating liquefaction with larger doses, but the poor results obtained indicated that mucosal tuberculosis requires larger doses. The transitory exacerbation of the pulmonary process entailed is soon counteracted by the improvement and increased resistance following cure of the mucosal lesion. Cases with tuberculous infiltration, exstructive pachydermic and perichondral lesions require the largest doses and most prolonged treatment. Fresh ulcerative processes, on the other hand, respond to smaller doses and a shorter course of treatment. The determining factor seems to be the general resistance of the patient rather than the primary pulmonary process. Recurrences are attributed to inadequate dosage. Fresh, destructive ulcerative laryngeal processes respond best to Tb I 698 I or R. The treatment should be continued for twenty weeks and the author believes it wise to administer a second course of ten to twelve weeks' duration later on.

The duration of treatment and dosage recommended for the various types of laryngeal tuberculosis are listed as follows:

	DOSE	DURATION OF TREATMENT IN WEEKS
Unilateral reddening of the vocal cord and tuberculous infiltration	8.75 to 94.6	5 to 43
Exstructive pachydermic lesions	49.00 to 63	15 to 20
Destructive ulceration	7.00 to 31.50	4 to 38
Tuberculous tumor	27.00	17
Perichondritis	66.50	37
Pantuberculosis	71.50	21

Retrolaryngeal Route for Dilatation of Constricted Glottis Due to Bilateral Posticus Paralysis (*Ein retrolaryngealer Weg zur Erweiterung der bei beiderseitiger Posticulähmung verengten Glottis*). Julius Berendes. Arch. f. Ohren- Nasen- u. Kehlkppfhlk. 155: 586-90, 1949.

An attempt is made to combine the advantages of the Rethi and Karinz operations and do away with their disadvantages. Patients are tracheotomized from two to four weeks prior to the planned intervention. A craniocaudal incision is made a thumb's breadth in front of the left sternocleidomastoid muscle and is extended along the posterior margin of the thyroid cartilage. The sternohyoid and sternothyroid muscles are pulled forward and the anterior portion of the omohyoid muscle is pushed back or divided. The pharyngeal constrictor is detached from the thyroid cartilage. Following retraction of the posterior margin of the latter, and after displacing the larynx to the other side, the pharyngeal mucosa of the piriform sinus is detached from the posterior surface of the left arytenoid cartilage and M. transversus, and from the left half of the cricoid cartilage lamina in the region of the arytenoid articulation.

The crico-arytenoid articulation is then opened, the exposed insertion of the M. posticus is divided and the joint capsule is opened. The small posterior crico-arytenoid ligament is divided and the transversus and lateralis muscles are dissected from the arytenoid cartilage. The latter is then fixed at an optimal position of the vocal labium and thyroid cartilage. It is seized near the tip of the pyramid which remains attached to the submucosa, and a double loop of bronze wire is passed around it. The ventral end of the wire is passed through the thyroid cartilage, the dorsal end about its posterior margin. The best position for the vocal labium can be determined by examination through an autoscope or endoscope, after which the wire is tied. If maximal abduction and external rotation is still impossible, the thyroid cartilage is fenestrated and the arytenoid cartilage is then pulled through the opening. Should external rotation grow less some time after operation, the wire can be twisted through a small incision. Bronze wire is better than silver wire for this purpose.

Restoration of the voice will depend on the ability of the contralateral vocal labium to compensate. This is usually possible to an astonishing degree. There may be a change in the tone and range of the voice, with some hoarseness. The retrolaryngeal approach permits satisfactory exposure of the arytenoid without sacrifice of the thyroid cartilage. It is, moreover, not so hard on the voice as the fenestration operation, which may cause diffuse hemorrhage of the subperichondrial anastomosis between the superior laryngeal artery and crico-thyroid artery. The fenestration operation may be indicated when better respiratory results are imperative. 5 references.

Coughing and Unconsciousness. The So-called Laryngeal Vertigo. J. F. Proudfit and Louis J. Karnosh, Cleveland Clinic, Cleveland, Ohio. Cleveland Clin. Quart. 16: 200-04, Oct. 1949.

In laryngeal vertigo, coughing produces unconsciousness with or without convulsions. Sometimes there is only giddiness. The cough is usually

preceded by tickling in the throat, is distinctive in character, may be mild, and commonly occurs in middle-aged plethoric, emphysematous, or somewhat hypertensive men. It is frequently associated with laryngitis or bronchitis. The attack is not usually repeated. Three illustrative case histories are presented. The first was a 43-year-old miner who stated that he had blacked out after coughing 8 times in four years. He coughed so violently that his face became cyanotic and he fell unconscious. He had neither convulsions nor incontinence and gave no history of tinnitus, vertigo or deafness. Physical examination was essentially negative except for persistent sibilant rhonchi in the right lower lobe. The second case was a 57-year-old man who became unconscious 3 times in one year after coughing. He stated that he had no warning but that the cough had a peculiar quality and occurred in a severe paroxysm which shut off his wind. He then became unconscious and remained so for several minutes, but had no convulsions. He became slightly dizzy and confused after recovering consciousness. He coughed a great deal in the mornings without becoming dizzy or unconscious, even though he sometimes coughed so much that he vomited mucus. Physical examination was essentially normal. The third case was a 48-year-old man who gave a history of cough for twelve years. He had had asthmatic attacks for six years. Cough and asthma became worse during the two years before admission. Blackouts had followed severe coughing paroxysms, with increasing frequency for the previous year. The attacks varied from 3 or 4 daily to 1 or 2 weekly. There were neither convulsions nor incontinence. Physical examination was essentially normal except for an occasional expiratory wheeze. The familial and past history of all 3 cases were negative for epilepsy but each patient was obese. Violent coughing precipitated all the attacks of unconsciousness. Chest roentgenograms were normal in all 3 cases. An electroencephalogram in 2 cases was normal and unilateral carotid sinus pressure produced no symptoms in 2 cases. Simultaneous bilateral carotid sinus pressure caused unconsciousness and generalized convulsive movements in the third case. The significance of symptoms after bilateral carotid sinus pressure is uncertain.

The etiologic factors of laryngeal vertigo are unknown but apparently are complex, and the treatment is entirely symptomatic. Phenobarbital probably is helpful but only as a sedative. 11 references.

Subcutaneous Rupture of Trachea From Larynx by External Trauma; With Stenosis and Recovery. *B. R. Dysart, Pasadena, Calif.* Laryngoscope 59: 502-05, May 1949.

A boy rode his motor scooter into a chain stretched across an entrance. The chain caught him across the neck and threw him off the scooter. He could breathe fairly well while sitting with his chin held up. He coughed up a little blood, could talk only in a whisper, and there was sharp pain on swallowing. Examination showed no laceration of the skin; swelling over the larynx was moderate, and there was no crepitus. Extreme tenderness prevented careful palpation. The larynx was easily inspected with

a mirror, and there was no movement of the cords on breathing or phonation. The cords were open at about 15° , and a little fresh blood was seen streaked over the left cord. A diagnosis of probable dislocation of the laryngeal cartilages was made, and the patient was admitted to the hospital. Fifteen hours after the accident, breathing was worse and tracheotomy was done.

A bronchoscope (7 mm.) was passed to insure a good airway during the procedure. A little below the cords, the scope entered an area filled with blood clot and the lumen of the trachea was found with difficulty. The scope was passed down to the bifurcation and a few blood clots were sucked out. Incision for tracheotomy was made and the trachea was found to have been torn completely away from the larynx, with a separation of an inch or more. The tear was transverse and occurred just below the cricoid cartilage. The tracheotomy tube was placed as low as possible. In order to keep the edges in good position and to prevent stenosis, a section of rubber tubing was left inside the trachea. The trachea was sutured back to the larynx with three strands of No. 1 chromic catgut. The intratracheal tubing was a section of rubber urethral catheter, the largest size that could be inserted without pressure. In order to hold it in place, a suture of chromic gut was passed through the tube and the torn edge of the trachea. Three weeks later the intralaryngeal tube was taken out and the breathing space was good, but in two weeks stenosis had occurred to the point of almost complete closure. It was decided to keep the strictured area dilated with rubber sections passed up through the tracheotomy wound following technic developed by Dr. Jesberg. He was turned over to Dr. Alden Miller, who has done a great deal of this work with Dr. Jesberg.

It was impossible to dilate the stricture sufficiently with retrograde bougies and rubber tubing sections, so that tracheostomy and removal of the scar tissue was done three months later. The scar was narrow and dense and located just below the cricoid cartilage. After excision of the scar, a rubber tubing, size 34 French, was inserted and anchored to the tracheotomy tube. The tubes were changed every two or three weeks and finally left out six months after the injury. Three weeks later he developed a case of bulbar poliomyelitis that was almost fatal. He recovered, however, with no residual paralysis. On Nov. 10, 1947, the tracheotomy tube was removed and later the wound was closed. There has been no return of motion of the vocal cords. The voice is a rough whisper. The cords are fixed with arytenoids about 4 mm. apart, and there is adequate airway.

The tendency for injuries of the larynx and trachea to stenose is well known. The same tendency is present in complete lacerations of the ear canal and of the nose. These injuries must be kept open with some form of dilating material. Rubber tubing is rather irritating and cannot be left in place much longer than two weeks. Acrylic molds made of dental plastic require time and a special laboratory for their construction. If a similar case were encountered, it might be advisable to obtain a piece of plastic tubing of the proper size and leave it in place for six months. The intratracheal tubing, of plastic material such as the anesthetists use, would be

an ideal material and would be on hand in most hospitals in different sizes. This could be anchored to a tiny ring soldered to the back of the tracheotomy tube, as described by Jesberg. It would then be unnecessary to leave the wound open as widely as is advised by Erich in using his special acrylic mold of dental compound.

Several unusual features were present in the above case. In spite of the complete rupture of the trachea, there developed no subcutaneous emphysema. The fact that there has been no return of motion of the vocal cords indicates injury to the recurrent laryngeal nerves. It is possible that nerves were torn away from the larynx by the wide separation of the torn parts. In spite of the extensive damage, there was not enough bleeding to cause much coughing or choking. The extent of the damage was not suspected until the incision for tracheotomy was done. There have been only a few reports of rupture of the trachea or bronchi without laceration of the skin. In none of the cases was an actual complete rupture seen and verified, but it is probable that it did occur in some of the cases reported. 5 references.—*Author's abstract.*

Oncocytic Cystadenoma of the Larynx. *Max L. Som and Ralph Peimer, New York, N. Y. Ann. Otol., Rhin. & Laryng. 58: 234-42, March 1949.*

Oncocytes are large cells whose outstanding characteristic is a finely granular acidophilic cytoplasm. The nucleus is usually somewhat pyknotic. The origin and function of oncocytes are unknown but their origin may be an independent phenomenon of old age which is characteristic of glandular tissue. They are found only in adults, rarely before the age of 50, and quite regularly at the age of 70 and above. Oncocytes have been identified in the tongue, pharynx, uvula, esophagus, salivary glands, nasal mucosa, larynx, trachea, bronchi, pituitary, liver, testes, etc.

The authors present a case of a 50-year-old white woman complaining of increasing hoarseness of a year's duration. Cystic polypi were noted in both laryngeal ventricles anteriorly. After removal by laryngoscopy, a microscopic diagnosis of partially oncocytic benign laryngeal cysts was made. Six weeks later, the patient returned with severe hoarseness to the point of aphonia and slight air-hunger. Examination revealed that the left false cord and ventricle had become markedly thickened, obscuring the left true cord and encroaching considerably upon the laryngeal lumen. A smooth polypoid swelling was noted in the anterior portion of the right laryngeal ventricle.

At operation, a large greyish mass was found originating in the left ventricle, involving the left false cord and displacing the left true cord inferiorly. A cyst was noted in the right ventricle anteriorly and another was seen lying subglottic to the anterior commissure. A routine left laryngofissure, crossing slightly onto the right, was performed. Voice is now fair and there is no evidence of recurrence eighteen months after operation. The resected portion of the larynx was honeycombed with small cysts, with a dull grey mass of indefinite outline, about 8 mm. across, being noted under the epithelium of the left false cord. There was deep penetration

of ordinary laryngeal and oncocytic glands into muscle, with resulting distortion of the normal structures. This case is unusual in that we have a cystadenoma of benign histology, with multicentric origin in both laryngeal ventricles, showing a rapid, neoplastic type of growth. The predominance of oncocytes in the lining of these cysts is bizarre. The role these cells play in the pathogenesis of the tumor is nebulous. 6 figures.—*Author's abstract.*

Tracheal Obstruction. *Charles M. Norris, Philadelphia, Pa.* Laryngoscope 59: 595-20, June 1949.

The phenomenon of tracheal obstruction is characterized clinically by expiratory wheezing and dyspnea; the "asthmatoïd wheeze" heard at the open mouth was described by Jackson many years ago as pathognomonic of partial obstruction of the trachea or a large bronchus. The occurrence of such symptoms should call for careful roentgen examination of the neck and chest (including fluoroscopic study of the swallowing function with opaque mixture); indirect laryngoscopy, followed by direct laryngoscopy and tracheoscopy will then confirm or disprove the presence of tracheal obstruction and in most cases it will establish the etiologic origin.

Tracheal obstruction in infancy and childhood may occur as a result of congenital tracheomalacia, in which there is a deficiency in the support provided by the cartilaginous rings of the trachea. Thymic compression does not occur as frequently as was formerly thought. These two conditions may be differentiated by the x-ray examination, particularly the inspiration and expiration lateral films, and the tracheoscopic findings. Other conditions responsible for tracheal obstruction in the early age group include tracheal foreign body, anomalous congenital vascular ring, and inflammatory diseases in which there may be an accumulation of thick or crusted secretions.

In adults, tracheal obstruction may occur in the chronic granulomatous diseases (tuberculosis, syphilis, scleroma). The diagnosis of these conditions may be confirmed by examination of tissue or secretions removed endoscopically. Of the benign tumors occurring in the trachea, the squamous cell papilloma is the most common. The incidence of malignant tumors of the trachea is surprisingly low as compared to that of adjacent portions of the respiratory tract. The presence and location of a tracheal tumor may be well shown by the lateral roentgenogram or by planigraphic roentgen films, but tracheoscopy with biopsy under direct vision is the only procedure by which accurate diagnosis may be established. Obstruction as a result of tracheal compression may occur in the presence of hematoma (postoperative or traumatic), acute cellulitis such as that due to instrumental or foreign body perforation of the esophagus, esophageal foreign body, substernal goitre, thyroid malignancy, aortic or subclavian aneurysm, or mediastinal neoplasm or lymphadenopathy. The treatment of the various types of tracheal obstruction is discussed and illustrative cases are presented. 36 references. 6 figures.—*Author's abstract.*

2. Pharynx and Nasopharynx

Tribromoethanol-Ether Anesthesia used for Tonsillectomy and Adenoidectomy. *Starling C. Yinger, Springfield, Ohio.* Arch. Otolaryng. 50: 290-94, Sept. 1949.

This article is an analysis of 3,043 operations for the removal of the tonsils or the tonsils and adenoid; in all of these operations an avertin-ether anesthesia was administered. The ages of the patients varied from 5 months to 74 years. The advantages of this anesthetic combination over local anesthesia and other types of general anesthesia are shown. The anesthetic results have been uniformly good, and there have been no anesthetic deaths or emergencies in our hands. The use of a relatively low dosage of avertin, employed as a true basal anesthetic, has made this a safe and dependable procedure. 3 tables.—*Author's abstract.*

The Use of Sodium Pentothal Anesthesia in Adult Tonsillectomies. *Irl H. Blaisdell, Syracuse, N.Y.* Laryngoscope 59: 721-25, July 1949.

One hundred eighty-three consecutive cases of adult tonsillectomies under intravenous sodium pentothal anesthesia have been reported. This drug has several advantages over other types of general anesthesia because of ease of administration, speed of induction and freedom from distressing postoperative symptoms. Its disadvantage lies in the increased amount of bleeding that occurs at the time of operation. For its successful use in tonsillectomies, several cardinal principals must be observed. Namely, the head-low position with an airway, a well-trained anesthetist skilled in its use, supplementary oxygen to prevent hypoxia, careful hemostasis and careful bedside nursing postoperatively. In this series of cases there were no ill effects; laryngospasm did not occur at any time during operation but did occur postoperatively in several cases. The convalescence of these patients was not altered and there were no pulmonary complications. 4 references.—*Author's abstract.*

BRONCHOLOGY

The Role of Bronchoscopy in the Preoperative Diagnosis of Carcinoma of the Lung. *Adrian Lambert, New York, N.Y.* New York State J. Med. 49: 1173-74, May 15, 1949.

With the advances in surgery for cancer of the lung, bronchoscopic examination as a diagnostic procedure has become a factor in bringing the patient to operation early in the course of the disease, thus raising the rate of resectability. Peripheral tumors in the early stage cannot be visualized through the bronchoscope exploration and should be made on the basis of suggestive x-rays. Centrally located tumors that protrude into the lumen of the bronchus can be visualized in the early stage, depending upon their position. Widening of the carina, angulation and deviation of the main

bronchus, longitudinal striations in a bronchus, bleeding, and a mass in the main bronchus do not necessarily contraindicate resection, and exploration should be done in the event of suspected x-ray diagnosis.

The use of the Papanicolaou stain to determine the presence of malignant cells in the aspirated bronchial washings increases the significance of the bronchoscopic examination, but failure to obtain a positive smear should not predicate against exploratory thoracotomy in the event of a suggestive x-ray, especially in peripheral tumors. The postoperative survival rate depends on the extent of the lesion at operation rather than on the type of cell; therefore, operability cannot be determined by bronchoscopy unless the tumor process is seen to have extended to the trachea, indicating inoperability. Histopathologic examination will not reveal the extent of the tumor, since on exploration the less malignant process may be found to have extended beyond the chest, and the markedly malignant process may still be operable.

It must be emphasized that the scope of bronchoscopy in determining operability is limited. However, a negative bronchoscopic examination indicates a favorable case for early exploration, thus increasing the rate of resectability before metastasis has occurred. 8 references. 1 table.—*Author's abstract.*

An Adrenalin Test of Bronchial Function (*L'épreuve à adrénaline: un test de fonction bronchique*). P. H. Rossier, *University of Zurich, Switzerland*. Rev. méd. de la Suisse Rom. 69: 686-96, Sept. 25, 1949.

In normal persons, there is a close relation between the vital capacity and the maximum respiratory capacity. In cases in which there is bronchial spasm, while the vital capacity is normal, the maximum respiratory capacity is reduced. If 1 mg. of adrenalin is injected intramuscularly in cases in which the maximum respiratory capacity is diminished by bronchial spasm, a repetition of the test in fifteen to thirty minutes after the injection shows the respiratory capacity to be increased. The same effect is obtained with the inhalation of aleudrin, 1%. In normal persons, neither the vital capacity nor the maximum respiratory capacity is definitely affected by the administration of adrenalin.

In cases of acute bronchitis showing sibilant sounds on auscultation, the administration of adrenalin increases the maximum respiratory capacity and causes the sibilant sounds to disappear. The same is true of subacute bronchitis with sibilant sounds. While infection may be the primary cause of acute and subacute bronchitis, evidently in these cases there is an element of bronchial spasm which intensifies and prolongs the symptoms, and which should be treated with bronchial dilators. In certain types of chronic bronchitis, also, the element of bronchial spasm is important, and the condition closely resembles bronchial asthma. In these cases, the adrenalin test is strongly positive. Treatment of bronchial spasm is indicated sufficiently early before it has resulted in irreversible stenosis. The

adrenalin test has proved of value in the diagnostic study of these conditions, and, in the author's opinion, should be more widely used in the study of bronchial function. 14 references. 7 figures (graphs).

Acute Fatal Asphyxia Due to Aortic Aneurysm in Patient with Four Saccular Aneurysms of Thoracic Aorta: Case Report. *Garfield S. Barnet, and Arthur S. Glushien, Aspinwall, Pa.* *Dis. of Chest* 16: 177-83, Aug. 1949.

Aneurysms of the thoracic aorta commonly press upon the trachea or bronchi with resultant respiratory difficulty. Acute asphyxiation as the cause of death in patients with such aneurysms is rare. The present report describes a patient who died of acute asphyxia when an aortic aneurysm suddenly obstructed the tracheal lumen. This occlusion was observed bronchoscopically, yet at necropsy the tracheal lumen, though narrowed, was not occluded, suggesting that the tracheal obstruction during life was due to dynamic dilatation of the aneurysmal sac. An incidental finding was the presence of three smaller aneurysms of the thoracic aorta of syphilitic origin. 12 references. 1 figure.—*Author's abstract.*

The Management of Bilateral Bronchiectasis. *Carlton R. Souders, Boston, Mass.* *Lahey Clin. Bull.* 6: 125-27, April 1949.

Of 277 cases of bronchiectasis personally observed, 121 or 44% had bilateral disease. In these, as in unilateral bronchiectasis, surgical resection is the treatment of choice. However, operation may be contraindicated by some severe complicating disease or old age. In these cases, if the diagnosis can be made by other means, bronchography is not necessary. In all others, the first step is a thorough diagnostic study, including history, physical examination, laboratory tests, x-rays of the sinuses, ear, nose and throat examination, vital capacity and a complete bronchogram visualizing all segments of both lungs with or without bronchoscopy.

Surgery is unwise if the above studies show such widespread disease that its complete removal is impossible. These cases are treated medically. If sufficient normal lung is present, medical treatment is begun, associated conditions such as asthma and sinusitis are cleared up, and resection of the diseased area of the worse lung is performed. In some cases, removing the bronchiectatic areas from the worse lung causes enough improvement to obtain satisfactory results from medical treatment of the minimal disease remaining in the other lung. The patient, however, is followed carefully and six to twelve months later bronchography is repeated and a second resection is performed on the other side if symptoms warrant it.

It has been found that when operation is performed, all the diseased segments on that side must be removed to prevent inevitable reactivation of symptoms and further dilatation if even minimally affected areas remain. The decision as to which segments to remove must be made before operation.

The postoperative complications are greater in patients with bilateral bronchiectasis than with unilateral bronchiectasis. Unless treated promptly and thoroughly, these may eventually result in considerable permanent

reduction of respiratory function. Collection of pleural fluid, excess bronchial secretions, and poor expansion due to bronchial plugging are the commonest such complications in the immediate postoperative period. Up to August 1948, 25 of 122 patients with bilateral bronchiectasis had resection of one or more lobes, and 6 patients had bilateral operations. Results ranged from moderate improvement to complete cure and there were no deaths. The remaining patients were handled by medical therapy with results graded from good to poor.—*Author's abstract.*

The Physiological Significance of Bronchiectasis. *Duane Carr, Edward F. Skinner, William E. Denman and Charles R. Kessler, University of Tennessee College of Medicine, Memphis, Tenn.* Dis. of Chest 16: 137-45, Aug. 1949.

Consideration of the anatomic pathologic factors found in bronchiectasis indicates at once the functional impairment to be overcome. The ciliated epithelium is destroyed and is not replaced. The rigidity of the walls of bronchiectatic bronchi precludes any possibility of bronchial peristalsis taking place. The atelectasis, pneumonitis or sclerosis of the surrounding lung parenchyma prevents the admission of air, which would play an important role in the expulsion of mucus, pus or foreign material from damaged bronchi through the medium of coughing. These bronchi then are inert receptacles which will retain and which will not expel infection and its bi-products without help.

It is to be expected that bronchiectasis should be a progressive disease. In an involved lobe, the retention of infection produces further destruction of and damage to the tissues of the bronchi and lung parenchyma. We have been still further impressed with the importance of impairment of bronchial cleansing in the production of bronchiectasis in a group of over 200 patients (to be reported in detail in another communication) who had suffered exposures to mustard gas in the last war. These exposures were of sufficient severity to cause chemical burns of the bronchial mucous membrane, with destruction of the ciliated epithelium. We have had the opportunity of making bronchograms on all these patients, some of them repeatedly over the past four years, and performed bronchoscopic examinations on many of them, making histopathologic examinations of the bronchial lining. All of the patients with proved exposure have developed a severe bronchitis characterized in the bronchograms by roughening of the bronchial contours. A large majority of them are developing bronchiectasis. Several have asthmatic symptoms with the production of a marked pulmonary emphysema. Having tried all known methods of making bronchograms, the authors have found the "dribble method" as effective as any of the more complicated procedures, at the same time causing less discomfort to the patient and requiring a minimum of time. The patient is seated on a stool in front of a fluoroscope and two eyedroppers-full of 1½% pontocaine are dribbled through one nostril while the tongue is held extended and the patient breathes through his mouth. The solution is directed by tilting the patient laterally, first to the right and then to the left. Immediately fol-

lowing this, warmed iodized oil is slowly instilled in the same fashion over the course previously anesthetized by the pontocaine. When fluoroscopy shows that the desired bronchi have been well filled, appropriate x-ray films are made immediately. In treating these patients, postural drainage at frequent intervals is essential, supplemented by expectorants such as ammonium chloride, 60 gr. daily and a high fluid intake to keep the bronchi moist.

Since the damaged bronchi are incapable of rejecting the coal tar bi-products of smoke, the patient cannot indulge in smoking. Repeated bronchoscopic aspirations of secretions are useful in some advanced cases. The choice of sulfa drugs, penicillin or streptomycin depends upon the flora demonstrated in sputum cultures, but all are reserved for those periods during which the patient needs them most greatly. General resistance is maintained by ensuring the patient a high red blood cell count and hemoglobin, high protein and adequate vitamin intake. Where resection of all involved lobes or segments of lung is feasible, it offers permanent cure of the disease. 5 references.—*Author's abstract.*

ESOPHAGOLOGY

2. Pharynx and Nasopharynx

Conservative Management of Chemical Burns of the Esophagus and Their Sequelae. *William V. Leary, Rochester, Minn.* Proc. Staff Meet. Mayo Clin. 24: 506-09, Sept. 28, 1949.

The commonest cause of corrosive burns of the esophagus is commercial lye, although there are numerous cleansing and washing preparations in general use which are capable of destruction of the esophageal mucosa. Immediately following ingestion of the substance, there is corrosion of the mucous membranes of the mouth and esophagus, with severe pain. During the stage of healing, the symptoms may disappear entirely. As the scar tissue contracts, the stricture is formed. Better results are obtained if treatment can be started early and formation of stricture prevented. A twisted silk thread should be swallowed and left in place as a life line. When the acute phase is over, increasingly large mercury or lead shot-filled, imperforate soft rubber catheters are passed into the stomach to preserve and enlarge the caliber of the esophageal lumen. It is important to carry on treatment for a long period until all danger of stricture is past. In treatment of a stricture which is already formed, Plummer sounds are passed over a previously swallowed silk thread. 4 references.—*Author's abstract.*

The Surgical Treatment of Pulsion Diverticula of the Thoracic Esophagus. *Stuart W. Harrington, Rochester, Minn.* Ann. Surg. 129: 606-18, May 1949.

Traction diverticula are usually caused by inflammation of the lymph nodes, but pulsion diverticula are essentially herniations of the mucous membrane through the muscle walls, and occur more frequently in the

right posterolateral wall of the lower third of the esophagus. Their position indicates that they are of embryonic origin, although they are usually found in the middle-age group.

Surgical treatment in 8 cases of pulsion diverticula is described. Roentgenographic and esophagoscopy examination having established the size and site, the preoperative care consists mainly of thorough removal of food from the sacculation, and administration of intravenous and aerosol penicillin. The surgical approach in 6 cases was through the right lower wall of the thorax, in one case through the left lower wall, and in the other through the midwall. In 7 cases, diverticulectomy with repair was done, and in the remaining case, invagination of a small diverticulum with plication of the dilated walls of the esophagus. One patient required repair of an esophageal hiatal hernia before excision of the diverticulum. Seven patients recovered, and only 3 have continued to have esophageal spasm. The other died from pneumonia and a small localized postmediastinal abscess on the thirteenth postoperative day. 7 references. 5 figures.

Dysphagia and Extraesophageal Pathology. A Clinical Review of Some of the Important Surgical Lesions From the Endoscopic Viewpoint. V. K. Hart, Charlotte, N.C. *Laryngoscope* 59: 771-89, July 1949.

As the title indicates, intra-esophageal lesions were purposely avoided and lesions of the hypopharynx, postcricoid carcinoma and functional dysphagia were excluded. The paper was confined to extra-esophageal lesions because of the recent surgical advances in treatment of these lesions and because of the difficulties sometimes encountered in differential diagnosis. With respect to the latter, cardiospasm, diaphragmatic hernia and malignancy of the cardia are frequently confused. Moreover, they may give symptoms simulating coronary or gall-bladder disease.

In anatomic sequence, pharyngo-esophageal diverticulum was first presented. Following this, superior mediastinitis, diaphragmatic herniation and carcinoma of the cardia were discussed. Illustrative cases were cited. Cardiospasm was discussed only from the standpoint of differential diagnosis and surgical treatment. In particular, it was emphasized that this condition may be confused with carcinoma of the cardia by both the roentgenologist and the esophagoscopist. Proper visualization of the cardia and biopsy, when possible, were stressed. A longer esophagoscope (gastroscope) is essential in arriving at a proper diagnosis. Moreover, important clinical aspects in the history and findings were enumerated. From our own experience, it would seem that carcinoma of the cardia and diaphragmatic herniation are more frequent than usually appreciated. The esophagoscopist should be familiar with the surgical advances and treatment of these conditions with especial reference to esophagogastronomy. Early diagnosis is essential. The less common extra-esophageal lesions causing dysphagia, such as metastatic malignant glands, curvature of the spine, bony

exostoses and carcinoma of the thyroid were recorded. No specific cases were presented, because therapeutic measures in these conditions are not as effective. 24 references. 9 figures.—*Author's abstract.*

Congenital Atresia of the Esophagus with Tracheo-Esophageal Fistula.
Paul M. Ricard and Norbert Vezina, Montreal, Canada. Union méd. du Canada 78: 804-08, July 1949.

Accurate and immediate diagnosis of congenital atresia of the esophagus prevents death from bronchopneumonia. Feeding by mouth must be suspended immediately. These anomalies are not infrequent, but are often unrecognized. Clinically, the signs are mucous secretions from the nostrils and corners of the mouth, vomiting, and cyanosis. X-ray with lipidiol (not barium) confirms the form and site of the atresia. The fistula should be ligated first, and an emergency gastrostomy is not recommended. This ligation should be followed by anastomosis of the two segments of the esophagus, and by a gastrostomy 24 to 48 hours later to ensure rest to the esophagus and to guard against adhesions. Long hospitalization is involved for plastic repair of the esophagus.

The patient described was operated upon at age 6 days and at age 2 years was completely normal except for a small diverticulum of the esophagus, which was not believed to be related to the operated atresia. 3 references. 5 figures.

MISCELLANEOUS

Treatment of Asthma with Cinchophen and Vitamin B₁. Report of Thirteen Cases. (*Tratamiento del asma con cincofeno y vitamina B₁. Presentacion de 13 casos.*) David Erusalimsky *Dispensario Regional de Pueblo Cazes, Entre Rios.* Prensa méd. argent. 36: 1112-15, June 17, 1949.

The importance of a correct etiological diagnosis for proper treatment of asthma is stressed and the accepted remedies for symptomatic and etiological therapy presented in tabular form. The author's method is designed to modify general reactivity and consists of administration of Flogolis-B Fuerte, the formula for which follows:

Vitamin B cryst	50 mg.
Hexamethylenetetramin phenolquinolincarb	0.75 mg.
Sodium phenyldimethylprozolonmethyaminomethane	0.40 mg.
Hexamethylenetetramine	0.75 mg.
Aqua bidestil	ad 10 cc.

One ampule of this preparation is injected intravenously daily up to 5 to 20 ampules. It is well tolerated, causing slight pain in only a single instance. The remedy has an antiexudative effect, reduces bronchial edema and increases expectoration for a few days, after which the latter subsides and disappears. It has also a sedative effect and the patients report a sense of well-being. The circulation is improved and dyspnea and cough disappear. Thirteen cases are briefly described, including 1 case of vasomotor rhinitis and 12 cases of asthma. Improvement was reported in all and in some instances was quite rapid. 3 references. 1 table.

Local Inhibition of Histamine Flare in Man. A Method of Bioassay of Antihistamine Drugs. *Harold B. Lovejoy, Samuel M. Feinberg and Ellis A. Canterbury, Chicago, Ill.* *J. Allergy* 20: 350-57, Sept. 1949.

In view of the inaccuracies inherent in the clinical trial method of evaluating the antihistaminic drugs, an objective method was sought by which the activity of these drugs might be compared. Reduction in size of histamine wheal and flare is known to be a function of the local concentration of a given antihistaminic drug. The flare response was chosen in preference to wheal response because of gross inaccuracies in measurement of the latter. Properly spaced excoriations in vertical rows of seven were made on the upper part of the back of white adults by means of the blunt end of a hollow needle 2 mm. in diameter, gently pressed against the skin and rotated. Solutions applied to these excoriations consisted of one drop of an antihistaminic solution or one drop of histamine solution, both of which were made up in serial dilutions of 100% increments of 1:8000 to 1:512,000 for histamine, and 1:3200 to 1:204,000 for each antihistaminic drug. The diluent for the antihistaminic drugs was distilled water; that for histamine was distilled water with merthiolate, 1 part to 100,000.

The technic adopted for testing consisted of the application of one drop of histamine solution to each of the excoriations in one of the rows, the upper excoriation receiving the most concentrated, i.e., 1 to 512,000. Each antihistaminic drug to be tested was then applied to one of the rows of excoriations in reverse order, the most dilute solution being applied to the top. After each row of drops had remained in contact with the excoriations for ten minutes, it was washed off. The histamine flares were then outlined by means of a ball pen, and one drop of dilution producing half maximum response was then applied to each row of excoriations following washing off of its respective antihistaminic drug. This dilution of histamine was then allowed to remain ten minutes, washed off, and resultant flares were then outlined as before and all outlines then were transferred to paper by pressure over outlined areas. The mean relative differences of flare suppression by each antihistaminic drug was then compared to that of pyribenzamine in twenty to forty subjects. In the majority of instances, the clinical therapeutic experience correlated well with this bioassay. 5 references. 3 figures.—*Author's abstract.*

An Evaluation of Radium Treatment to the Nasopharynx in Asthmatic Children. *Victor L. Cohen and Wilbur J. Fisher, Buffalo, N.Y.* *J. Allergy* 20: 328-34, Sept. 1949.

A method of rating was devised on the basis of the following observations in order to estimate the severity of asthma in 15 children (ages 4 to 16 years, average age 8.5 years) treated by application of radium to the nasopharynx according to the method of S. J. Crowe: a) 1 point for each teaspoonful, capsule or tablet of antiasthmatic medication, b) 3 points for each aminophyllin suppository taken, c) 5 points for each injection of epinephrine or intravenous aminophyllin received, d) 1 point for each day

of asthma reported, e) 5 points for sibilant and sonorous râles heard in the chest on auscultation, and f) 5 points for each day the patient was hospitalized for asthma. Patients were scored at each visit (usually every other week). The scores were arranged according to the weeks subsequent to the completion of the radiation therapy, totaled and graphed. No specific antiasthmatic therapy was used during the period of study. The results were as follows: 1) improvement for 9 weeks after radium therapy, after 9 weeks until the 16th week improvement was not as perceptible, from the 16th to the 34th week the asthma was definitely worse; 2) a comparison of the improvement obtained by children who had high sedimentation rates previous to radium therapy to those with normal sedimentation previous to therapy indicated that those children who had high sedimentation rates obtained better results, which would indicate that those children who harbored infection in their nasopharynx obtained better results from the treatment; 3) a comparison of those children who had the greater amount of adenoid tissue (as determined by a lateral x-ray film) was made with those with the lesser amount of adenoid tissue. The response in the group with the smaller amount of adenoid tissue was not as prompt initially as those with a greater amount of adenoid tissue, but was more sustained and lasting; 4) a comparison of the results obtained in the group having hyperplastic sinusitis with those with normal sinuses showed a more rapid response initially in those having hyperplastic sinusitis, but those with normal sinuses over the entire course of the study obtained the better response to the treatment.

Conclusions: 1) radium treatment to the adenoids should be used only as auxiliary treatment to specific therapy in childhood asthma; 2) if radium treatment is considered for therapy of the asthmatic child, better results may be anticipated in a case with an increased sedimentation rate, normal sinuses and little or no adenoid tissue.

Some Observations Upon the Otological Effects of Streptomycin Intoxication. *M. R. Dix, C. S. Hallpike and M. Spencer Harrison, London, England. Brain 72: 241-45, June 1949.*

Optokinetic and vestibular nystagmus both exhibit an identical saw-tooth rhythm, that is to say, a regular alternation of slow and fast movements. Our interest in the relationship between these two types of nystagmus owes a great deal to the investigations of J. Ohm. Ohm was impressed with the indistinguishable character of their saw-tooth rhythm. He noted, too, a particularly smooth summation of the nystagmic responses when retinal and vestibular stimuli were applied together. He concluded that both types of response depended upon a common nervous mechanism within the brain stem, which he identified with the vestibular nuclei. Ohm adduced little experimental evidence in favor of this theory. He stressed, however, in one of his better known papers, that its validity could be determined by an experimental destruction of the vestibular nuclei. According to his theory, such a procedure would abolish both optokinetic and caloric nystag-

mus. According to Winston and his collaborators and to Ruedi and others, streptomycin intoxication causes destruction of the vestibular neurones, including the vestibular nuclei. The drug should, therefore, be ideally suited for the experiment suggested by Ohm for the validation of his theory.

Twelve subjects with pulmonary tuberculosis were therefore investigated following streptomycin therapy. In every case the amount and duration of the dosage was sufficient to warrant the expectation of destruction of the vestibular neurones. Our results showed the caloric and galvanic responses to be either totally absent or grossly reduced. In all the cases, however, the optokinetic responses were completely normal. If we are right in assuming that the loss of the caloric responses was due to the destruction of the vestibular nuclei, then we must also conclude that the nervous mechanism of optokinetic nystagmus is entirely independent of these nuclei. Ohm's theory, therefore, tested in the manner which he himself prescribed, must be regarded as unacceptable.—*Author's abstract.*

Tuberculosis of the Upper Respiratory and Digestive Tracts and Streptomycin (*Tuberculose des voies aéro-digestives supérieures et streptomycine*). P. Guns, University of Louvain, Belgium. Rev. laryng., rhin., otol. 70: 305-24, July-Aug. 1949.

This paper reports the treatment of tuberculosis of the upper respiratory tract with streptomycin, including 5 cases of pharyngo-laryngeal tuberculosis of the granular type and 30 cases of tuberculosis of the tonsils and larynx; the latter group included infiltrative, ulcerative and vegetative types. The dose of streptomycin was 1.2 Gm. daily, given in two doses by intramuscular injection. In these cases dysphagia was the first symptom to be relieved; it diminished by the third to the fifth day of treatment and disappeared about the eighth or tenth day. The lesions themselves showed more gradual improvement; complete cicatrization was not observed in most cases until the thirtieth day and often much later; the lesions of the epiglottis and arytenoids were the slowest to show evidence of healing, and edema often persisted in this region for long periods. The vegetative lesions healed slowly, especially after they had diminished to about one-third their original size. At this time cauterization, either chemical or with the galvano-cautery, was found to be useful in stimulating complete healing. The granular pharyngo-laryngeal lesions healed more rapidly, sometimes disappearing completely in two to three weeks. The duration of treatment varied from eighty to one hundred and twenty days. If the lungs showed cavities, a pneumothorax was induced before beginning streptomycin therapy, to diminish cough and expectoration and guard against the development of streptomycin resistance.

In 2 cases in the author's series, there was a recurrence; in one of these cases, the dosage of streptomycin was increased to 2 Gm. daily for twelve days, with resultant cure of the lesion. In the other case, the patient had returned to her home, and was treated subsequently at a sanatorium, but did not again come under the author's observation.

Although the pharyngeal and laryngeal lesions heal under streptomycin therapy, the pulmonary lesions still persist in many cases, although usually showing definite improvement. Only 2 patients in the author's series showed any toxic reaction; one developed vertigo after having been given 41 Gm. of streptomycin; but this symptom disappeared. The other developed nausea, vomiting and vertigo after receiving 37.5 Gm. of streptomycin; complete loss of vestibular responses developed, but the vertigo disappeared and hearing was normal. 29 references.

Use of Thiopental Sodium U.S.P. (Sodium Pentothal) in Operations on Ear, Nose and Throat. *Gilbert E. Fisher, Birmingham, Ala. Arch. Otolaryng.* 50: 295-99, Sept. 1949.

During the past five years the authors have used sodium pentothal in 1636 operations on the ears, nose and throat. They do not describe the use of sodium pentothal with the idea that it should replace all other types of anaesthetic agents for otolaryngologic surgery but do maintain that it is highly satisfactory in those cases where it is definitely not contraindicated as determined by history, physical examination and laboratory findings. The ease with which it is administered, the rapidity of its action as contrasted with inhalation anesthetics, the absence of postanesthetic nausea and vomiting, and the rapid recovery to the conscious state have strong appeal to both surgeon and patient.

The pharynx and larynx are carefully sprayed with 2% pontocaine in every case immediately prior to the intravenous administration of sodium pentothal. The technic of its use in otolaryngologic operations is described and a list of the 1636 operative procedures is given.

Sodium pentothal was used in 41 endoscopic operations during the five-year period, in contrast to 2099 endoscopic cases performed under local anaesthetic during the same time interval. 1 table.—*Author's abstract.*

The Evaluation of X-ray Diagnosis in Ophthalmology, Rhinology and Otolaryngology. *D. H. Anthony and D. F. Fisher, Memphis, Tenn. Mississippi Doctor* 26: 79-89, Sept. 1948.

Roentgen rays should be used more in diagnosing eye, ear, nose and throat conditions but clinicians should understand their limitations as well as their benefits. An immediate and correct diagnosis can often be made by roentgenograms alone but, in general, they should be correlated with the clinical findings. Roentgenograms should be made of any orbital injury to determine presence or absence of fracture, as swelling frequently prevents its clinical diagnosis until too late for corrective surgery. Enlargement of the optic foramen may indicate a tumor of the optic nerve and necrosis may indicate a bony malignancy around the foramen. Fracture of the foramen is rare but should always be eliminated in case of orbital injury with loss of vision. Acute constriction from a congenitally small foramen may produce a retrobulbar neuritis. Diagnostic roentgenograms are important to determine damage to the superior orbital fissure because of the

important nerves passing through it and possible involvement of the anterior brain. This picture only shows correctly when a roentgenogram of the frontal sinus is made in the nose-forehead position.

Roentgen rays are important to determine the cause of exophthalmos because frequently it is impossible to determine otherwise the location and type of lesion, probable duration and presence or absence of a tumor of the bone or soft tissue. Bony tumors can usually be outlined but the density of soft tissue tumors is so low that only an approximation of its exact size and location can be obtained. Decreased density in involved sinuses frequently indicates a mucocoele. Bony destruction at the orbital apex indicates possible malignancy. Roentgen rays are especially valuable in localizing intra-ocular foreign bodies but cannot differentiate magnetic and nonmagnetic varieties. The antero-posterior view is best if there is difficulty in determining whether or not a foreign body is present or if the globe is penetrated. The Pfeiffer method of localization using the Comberg contact lens is simple, easy to calculate and accurate. Eyes have frequently been lost because of improper localization and consequent unnecessary manipulation and surgery.

Roentgenograms should always be made of nasal and facial injuries to determine displacement or overriding of fragments. Pictures of the antrum show its size and contents. They should be taken in the upright position to show the fluid level and are usually absolute proof of the presence of pus. Moth-eaten bony necrosis indicates malignancy. Diagnostic pictures of the other sinuses are also essential before sinus surgery. Roentgenograms of the lacrymal sac are made to determine the presence of chronic mucocoele. Diagnostic roentgenograms of acute mastoiditis are essential and often determine whether radical or semi-radical surgery is required in chronic cases. They are also extremely helpful in determining the presence of salivary calculi or retropharyngeal abscesses and foreign bodies in the throat. 36 references. 2 tables.

Results of Present Day Operations for Acoustic Tumors. *Gilbert Horrax, M.D., James L. Poppen, Department of Neurosurgery, and R. E. Strain, M.D., Fellow in Neurosurgery, The Lahey Clinic, Boston, Mass.* *Lahey Clinic Bull.* 6: 109-11, April 1949.

In comparative evaluations of the results of neurosurgical procedures, it is essential to consider both the operative mortality and useful survival rate. During the period 1934-1943, total extirpation of sixty acoustic tumors was carried out at the Lahey Clinic. Of this group, 49 survived five years or more, a mortality rate of 18.3%. At least 39 (65%) could be classified as "useful survival". Available statistics on cases treated by Dr. Harvey Cushing by incomplete intracapsular enucleation indicate a five-year mortality rate of 56.2%, with a useful survival rate of 25%—

35%. This demonstrates that total extirpation is the procedure of choice in the treatment of acoustic tumors. 6 references. 2 tables.—*Author's abstract.*

Effect on the Ear of Vitamin A Feeding After Severe Depletion. *H.B. Perlman, Chicago, Ill.* Arch. Otolaryng. 50: 20-35, July 1949.

Vitamin A plays an important role in the process of remodelling of the bones of the skull and spinal canal during growth. The skull cavity and spinal canal enlarge to accommodate the enclosed growing nervous system. This occurs in the calvaria and also in the cartilaginous bones of the skull base. A striking change occurs in these bones when young growing animals are raised on a diet depleted of vitamin A. There is an arrested growth of the cavities containing the central nervous system, associated with a marked hyperplasia of the inner periosteal layer of bone. This leads to reduction in space for the growing nervous tissue and actual compression of some of the nerves in the bony canal walls through which they pass. The neurologic signs observed in vitamin A-depleted animals are now explained on this basis rather than considering them to be a primary effect of vitamin A depletion upon the nervous system.

The temporal bone is most strikingly changed in these animals on a vitamin A-depleted diet. The change is largely confined to the inner periosteal layer of the otic capsule. Marked hyperplasia is seen. This is particularly striking in the internal acoustic meatus where various degrees of narrowing and elongation of the meatus are observed. The VIIIth nerve may thus become pinched off and undergo various degrees of degeneration. In addition, small bony nodules are produced in the cribiform plate, the perilymphatic surface of the modiolus, and in the cochlear aqueduct. Neural degeneration may extend through the spiral ganglion out into the bony spiral lamina. However, considerable compression and stretching of the VIIIth nerve was found to be compatible with a good auditory function as tested by the middle ear muscle reflex. No tendency for primary labyrinthitis was observed.

In addition to the changes in the periosteal layer, some changes in the enchondral layer were observed around vascular space. The vascular connective tissue spaces were prominent in the hyperplastic periosteal layer. These became ossified when the depleted animals were fed vitamin A. The hyperplastic condition of the periosteal capsule bone with narrowing and elongation of the internal auditory meatus was not changed however by vitamin A feeding. Furthermore, neural changes in the VIIIth nerve and cochlea were not reversed. Auditory functional loss as tested by the middle ear muscle reflex was not restored by feeding vitamin A. The study of this experimentally produced temporal bone pathologic change increases our understanding of one of the many factors needed for normal development of the otic capsule. While in man a comparable type of temporal bone pathologic change has been described by a few early workers, there is no report of similar pathologic changes in the ear of human cases known to

have been depleted of vitamin A. On the other hand, Gerlings has recently described analogous changes in the temporal bone in the condition known as oxycephaly. 18 references. 10 figures.—*Author's abstract.*

Congenital Deaf-Mutism Consecutive to an Infectious Disease in the First Three Months of Pregnancy (*Sudi-mutité congénitale consécutive à une maladie infectieuse pendant les trois premiers mois de la grossesse*). *Albert Candiotti, Bordeaux, France.* *Rev. laryng., Bord.* 70: 346-83, July Aug. 1949.

This paper reviews the studies of deaf-mutism following the occurrence of rubeola in the first three months of the mother's pregnancy in Australia, the United States, Great Britain and elsewhere. Rubeola has not occurred in epidemic form as frequently in France as in these other countries, and has been regarded as of little importance. A study of deaf-mute children in Bordeaux revealed 51 cases in which the condition was congenital and no definite cause was known; inquiries to the parents of these children brought 46 replies. On the basis of these replies, a definite cause for the deaf-mutism was determined in 15 cases; in the remaining 31 cases, there was a history of rubeola in the mother during early pregnancy in 2 cases, or 6.4%. In one case the attack of rubeola had occurred in the second month of pregnancy, and in the other in the seventh week. In a further study made in various institutions for the care of deaf-mute children in France, 461 replies were received from parents of congenital deaf-mute children, there were 35, or 7.5%, in which deaf-mutism followed an acute infectious disease occurring in the early months of the mother's pregnancy; and 6 cases, or 1.3%, in which the infectious disease was known to be rubeola.

These figures, combined with the findings in countries where rubeola is more prevalent, indicate that pregnant women, in the early months of their pregnancy, should be protected against acute infectious diseases, and rubeola in particular. If such a disease occurs, specific therapy should be employed, which in the case of rubeola, consists in the use of convalescent serum or gamma globulin. 51 references. 2 tables. 2 figures (audio-grams).

Hematology. *John Joseph Shea and John Joseph Shea, Jr., Memphis, Tenn.* *Laryngoscope* 59: 693-08, July 1949.

The last four years' advances in hematology, of interest to the otolaryngologists, are presented. The epidemics of infectious mononucleosis during and since the war have increased the importance of this disease, so that a brief review of it is presented.

The disease is clearly infectious, but the epidemiologic factors are obscure. The infecting agent is a virus, and the disease has been transmitted in monkeys by an agent obtained from bacteria-free nasal washings.

The exact mode of transmission is not known, but it seems to be by droplet infection similar to the common cold. Cases may occur sporadically or in epidemic form. The virus is highly infectious, though it resembles many other viruses in that inapparent infection is common. This may explain why some persons exposed to the infection do not contract the disease. The infective period is unknown. One attack probably confers a lasting immunity, and reported recurrences are probably due to a similar condition of infectious lymphocytosis, or other infections, or to relapses of the original infection. It occurs in all ages, but is most common in children.

Our experience with aureomycin and chloromycetin has been too limited to warrant a definite statement, but in the few cases so treated the angina and the cervical adenitis receded rapidly. The blood fractions have been made available for assisting coagulation, preventing or attenuating infection and many other uses. For the otalaryngologists, the most important derivatives are those which assist coagulation. Fibrin foam is a light, absorbable material which when used with thrombin has proved effective in a variety of surgical conditions. It deserves a try in cases of epistaxis resistant to routine cautery and packing. Fibrin film, containing thrombin, was first used as a dural substitute but has recently been employed to repair perforations of the drum and nasal septum. It is pliable and can easily be molded into a suitable shape. In suspected or frankly infected areas, these agents are equally effective with the sulfonamides and penicillin. Recently, "gelfoam", absorbable gelatin sponge, and "oxycel", oxidized cellulose, have received clinical trial, especially in nasal packing for epistaxis. They seem to be as effective as the blood derivatives, and together with them have the advantage over routine packing, in that they are absorbable and do not have to be removed. Thrombin has been used in nasal surgery to facilitate the attachment of skin flaps and together with fibrinogen has been used in plastic surgery. Fraction 1 of Cohn contains the specific antihemophilia globulin "thromboplastinogen," and 200 to 600 mg. of this given intravenously will temporarily restore the clotting mechanism of a hemophiliac patient to normal. This will allow him to undergo minor surgery without complication from hemorrhage and stops bleeding when it occurs following an accident.

Chemical agents are now available for the treatment of leukemia and lymphoma, the most important of which is nitrogen mustard. Two new products have been obtained from spinach and liver, folic acid and vitamin B, respectively, which are very powerful in the treatment of macrocytic anemia and related conditions. In addition, there have been advances in the understanding of the coagulative process and the diseases associated with it. The implication of many of the commonly-used drugs in the development of hypoplasia of the marrow in varying degrees makes it important that the potential danger of these drugs be understood. 67 references.—*Author's abstract.*

Angiosarcoma. A Review of the Literature. Joseph M. Kinkade, Tucson, Ariz. Ann. Otol., Rhin., & Laryng. 58: 159-67, March 1949.

In attempting to ascertain the incidence of angiosarcoma, the clinician must recognize the fact that at present it is not possible to compile a reliably complete list of published cases. In many of these reports the data on which the diagnosis is based are insufficient or obviously erroneous; furthermore, a number of different terms have been used in order to describe identical or at least similar pathologic entities. This terminologic problem seems to be related somehow to the difficulties encountered in the histologic diagnosis of 'angiosarcoma'. Not even the question as to whether there actually exist tumors which may be described as true malignant vascular neoplasms has been conclusively settled by the oncologists. On the one hand, there appears the tendency to create ever more specialized terms in order to account for the slightest differences observed in the course of microscopic examination. Pathologists holding an opposite view maintain that, because of the ready metaplastic conversion of proliferating mesenchymal tissue of one kind into tissue of another kind, one can only speak of conspicuously vascular tumors belonging to the larger group of mesenchymomas.

It seems advisable to adopt this latter and more comprehensive term as the basis of future statistical tabulations. Obviously, it becomes difficult to evaluate the clinical features of a rare disease once differentiation has been carried so far as to establish a great number of small subgroups. The micropathologic observations in themselves are not sufficiently conclusive to permit generalization in unequivocal terms. In some cases, for instance, it is not possible to determine the precise cellular origin of vascular sarcomas through examination of a single tissue specimen, or even through an extensive morphologic investigation, and the question can be decided only by means of explantation of cells *in vitro*.

The present review of the literature comprises the years 1934 to 1948, and starts where the report of Freilich and Coe (Am. J. Cancer, 1936) ended. It leads to the impression that 'angiosarcoma' probably is more frequently encountered than had previously been assumed. 42 references. —*Author's abstract.*

Introduction to Studies on the Common Cold. A. R. Dochez, College of Physicians and Surgeons, Columbia University, New York, N.Y. Bull. New York Acad. Med. 25: 528-30. Aug. 1949.

This paper reviews the earlier studies on the etiologic factors of the common cold, including the work of the author and his associates in isolating and culturing the virus of the common cold. The practical objective of this work was to develop a useful method of prophylactic inoculation to establish immunity, but the success of such immunization is doubtful, especially since there is no evidence of an enduring immunity following a spontaneous attack of the common cold. Further study of the common cold virus and its immunologic varieties is essential, as well as study of the natural infection in man, especially in regard to the possibility of developing increased resistance to the infection. 4 references.

The Relationship of Bacteria to the Common Cold. *Yale Kneeland, Jr., College of Physicians and Surgeons, Columbia University, New York, N. Y.* Bull. New York Acad. Med. 25: 534-36, Aug. 1949.

From a review of the literature and the author's studies, it is concluded that the hemolytic streptococcus may be the direct cause of respiratory tract infection (pharyngitis), but does not appear to be a cause of complications of the common cold. The pneumococcus and *H. influenzae*, however, both increase the severity of the common cold in susceptible individuals and cause such complications as sinusitis, otitis and pneumonia. This is especially true in infants and children, according to the findings of the author and others, whereas in adults, most of the effects of the common cold appear to be due to the virus. It has been found also that the virus of the common cold may increase the dissemination of pathogenic bacteria, such as the pneumococcus, and possibly in some instances alter their essential virulence. With this increased dissemination of pathogenic bacteria, the same or another virus may act in conjunction with such bacteria, and may become more infective. 13 references.

Research on the Common Cold. *Norman H. Topping, National Institute of Health, Bethesda, Md.* Bull. New York Acad. Med. 25: 530-33, August 1949.

This paper presents a brief review of earlier studies of the etiologic factors of the common cold, and of the more recent work done under the auspices of the Commission on Acute Respiratory Diseases during World War II and by the author and his associates at the National Institute of Health. At the National Institute of Health, 60 persons in 8 groups were inoculated with allantoic fluid containing an agent isolated from nasal washings of persons with symptoms of a common cold within twenty-four hours of the onset of such symptoms. Of these 60 persons, 57 developed the characteristic syndrome of the common cold similar to that of the persons from whom the infective agent was obtained. Preliminary examination of the material used for inoculation with the electron microscope showed characteristic particles of the same size as viruses of the influenza type, but distinguishable from such influenza viruses. Other studies of the etiologic factors of the common cold and of the possibility of immunization against colds are in progress at the Institute.

The importance of the study of the problem of the common cold is emphasized, not only for the purpose of advancement of scientific and medical knowledge, but because the solution of the problem is of great significance to the public health. The common cold is the most prevalent and most highly infectious of all the communicable diseases. It causes much loss of working time and reduction in efficiency with resulting loss of wages, in addition to cost of drugs and medical care. Although the common cold is a minor infection, it must be rated as an important enemy of the public health. 10 references.

Nontraumatic Aneurysm of the First Portion of the Right Vertebral Artery Associated with Vocal Cord Paralysis. *David V. Habib, New York, N. Y.* Ann. Otol., Rhin. & Laryng. 58: 263-67, March 1949.

A case is reported of nontraumatic aneurysm of the first portion of the vertebral artery. A 57-year-old man with essential hypertension, of known ten years' duration and without obvious clinical arteriosclerosis, complained of hoarseness of two months' duration, associated with sharp pain, intermittent, in the right lower anterior cervical region radiating through to the back of the neck. He noted a 2 cm. diameter nodule at the point of origin of the pain. He also noted a feeling of coldness in the right anterior cervical region when he swallowed food or fluids. He began to tilt his head slightly to the right, which improved his vision. Blood pressure was 190/120. The patient spoke in a whispered tone. A 2 cm. rounded, soft, movable, slightly tender mass was found in the region of the upper portion of the right lobe of the thyroid. The trachea was deviated slightly to the left. Laryngoscopy showed a fixed right vocal cord. No thrill, bruit or pulsation was detected. A chest x-ray confirmed the deviation of the trachea to the left in the region of C-7 and T-1. X-rays of the esophagus were normal. Films of the cervical spine in the P.A. projection demonstrated a slight irregularity along the right border of the tracheal air column in the laryngeal and subglottic regions. There was slight demineralization of the transverse process of C-7 on the right. A lateral view showed the soft tissue space behind the trachea in the same region to be wider than usually seen. No neurologic abnormality other than the vocal cord paralysis was found and there was no improvement with galvanic stimulation twice a week for one month. Because of the single nodule in the thyroid and the possibility that more pathologic factors could be present than were felt in the neck, it was decided to explore. At operation, the only pathologic change noted in the thyroid was the 2 cm. adenoma in the right lobe. After completely immobilizing the right lobe, a moderate anterior bulge about 2x2.5 cm. overlying the transverse process of C-7 was noted, with a scar tissue reaction and brownish discoloration of the fascia. No pulsation was noted. Exploration of the mass revealed it to be a clotted aneurysm of the vertebral artery. It was excised, ligating a patent artery both above and below, the ligation above being flush with the sixth cervical vertebra. The recurrent laryngeal nerve was not located. Postoperatively, the pain disappeared and the voice returned to normal volume within nine and a half months. The right vocal cord remained fixed and the patient continued to tilt his head slightly to the right. The cold sensation on swallowing food and fluids disappeared. Follow-up x-rays showed that the deviated trachea and the widening of the soft tissue space behind the trachea, plus the slight irregularity along the right side of the tracheal air column, returned to normal limits. The demineralization of the transverse process of C-7 persisted. It is suggested that this origin for vocal cord paralysis, while probably rare, may be an explanation for some vocal cord paralyses where none other is ascertainable. 4 references.—*Author's abstract.*

Diseases of the Salivary Glands and Their Ducts. *D. H. Anthony and Daniel F. Fisher, Memphis, Tenn.* J. Tennessee State M. A. 41: 362-77, Oct. 1949.

The more common diseases of the salivary glands and their ducts are summarized for ready reference. Mumps is an extremely common condition which is actually a systemic disease and not necessarily limited to the salivary glands. Orchitis is a frequent complication and the ovaries, pancreas, spleen and other organs are occasionally involved, some 35 complications being listed. There is no specific vaccine for mumps and experimental use of immune or pooled plasma has been inconclusive. Orchitis only occurs in about 1% of cases before puberty, but in 18% or more of adult cases. The incidence of oophoritis is supposedly much less but more careful examinations might show it to be more common.

Orchitis may be a serious complication because of the resultant mild or severe testicular atrophy. Operation is now recommended for cases of severe, acute orchitis with marked swelling and pressure. A line of incision about 2 cm. long over the anterior surface of the scrotum on the involved side is infiltrated with 2% procaine solution. The incision is made through the tunica vaginalis. The hydrocele fluid usually pours out under pressure. A small Penrose drain is inserted beneath the tunica vaginalis and the wound is closed.

Salivary calculus is the next most frequent pathologic factor of the salivary glands, the submaxillary being involved in over two-thirds of the cases. These calculi have a composition similar to tartar on teeth. They may cause acute or chronic obstructive symptoms, with pain and swelling of the gland. Complete roentgen examination for calculi should be made of all patients with such symptoms. Treatment is removal of the calculus, preferably from Wharton's duct, under local anesthetic. The tongue is held out of the way by retraction sutures and a probe is passed into the duct, which is then opened longitudinally with small, sharp-pointed scissors. There are no important structures above the duct. Calculi located at the junction of Wharton's duct and the submaxillary gland should be removed intra-orally. If the stone is in the gland, it may be removed by a skin incision or sometimes through the posterior end of the duct.

Acute inflammation of the salivary glands may result from infection or extension. Treatment consists of full doses of penicillin plus sulfonamides, if tolerated. An associated abscess requires incision and removal of any calculi. Administration of at least 3,000 cc. of fluid every twenty-four hours is essential. Roentgen therapy is preferable to radium, dosage being 25 to 150 r for 3 or 4 doses one to three days apart. Complications are frequent, toxic absorption, mediastinal extension, or rupture into the external auditory canal or temporomandibular joint being the most serious. Fistulas are treated by tight bandage, cauterization, or both. Ranulas should be excised. Tumors may occur, the most common being adenolymphoma. Obstruction by calculus should be eliminated before removing the gland. 92 references. 1 table. 3 figures.

On the Presence of Yeast Fungi in the Cerebrospinal Fluid in Oto- and Rhinogenic Meningites. *Tapio Savolainen, Helsinki, Finland. Acta Otolaryng. 37: 339-46, Aug. 1949.*

During 1946-1948, yeast fungi were found in the cerebrospinal fluid in 16 cases or in 20% of the patients suffering from meningitis. Thirteen of these cases of meningitis, all of which were treated both operatively and medically, were purulent and two serous. One of the latter and one of the purulent cases were rhinogenic, the rest being otogenic.

In addition to yeast fungi, which in two cases were isolated and recognized as strains of *Monilia candida*, pathogenic bacterial species, such as staphylococci, streptococci and pneumococci, also were found simultaneously in 12 cases. One of the isolated strains of yeast fungi was pathogenic to mice and sulfathiazole-resistant, the other being sensitive to sulfathiazole but not pathogenic to mice. Yeast fungi of similar type were encountered in the auditory canals and nasal sinuses in 23% of healthy control persons but these strains were not pathogenic to mice.

Five of the patients died, while 11 recovered. In a part of the cases it could be shown that yeast fungi had not been brought into the cerebrospinal fluid through therapeutic measures. The secondary nature of the yeast fungi seemed apparent and they had no effect on the progress of the disease. In a part of the cases, sulfonamide treatment seemed to promote the disappearance of yeast fungi from the cerebrospinal fluid and no fungi were found in the cerebrospinal fluid of convalescents. 25 references. 1 table.

—*Author's abstract.*

The Prevention and Treatment of Motion Sickness. I. Seasickness. *Leslie N. Gay and Paul E. Carliner, Johns Hopkins University Hospital, Baltimore, Md. Bull. Johns Hopkins Hosp. 84: 470-87. May 1949.*

The authors present a study of seasickness planned and executed on the U. S. A. T. General Ballou, a transport carrying 1,366 soldiers on a rough voyage to Bremen in 1948. A control study was made of 485 men subjected to the same motion of the sea and assigned to 4 compartments on the transport. One half of the men were given dramamine orally or a placebo on leaving New York and the other half 2 to 12 hours after the onset of seasickness. The dose of dramamine was 100 mg. every 5 hours and before retiring. No ill effects were observed in 300 men and in no case was discomfort sufficient to justify cessation of treatment. Other anti-histamine drugs are said to cause unpleasant symptoms in 25 to 60% of cases. The amount of dramamine usually required to prevent symptoms was 400 mg. in 24 hours, but in some cases up to 800 mg. were necessary. The authors recommend dramamine as a powerful, non-toxic drug for prevention and treatment of seasickness. It can be administered orally or rectally. Complete relief was experienced in all but 11 of the 300 men. For rectal administration the capsule is punctured at each end, inserted into the rectum and followed by injection of 30 cc. of salt solution. The pharmacology and toxicology of dramamine are fully described. The mode of action is obscure, but complete

relief is usually experienced within 1 hour following ingestion of the first capsule. Dramamine is β -dimethylaminoethyl benzohydril ether 8-chlorotheophyllinate and contains 54.3% of ether. It is insoluble in water. It has an antihistaminic potency $1\frac{1}{2}$ times as great as β -dimethylaminoethyl benzohydril ether. 6 references. 6 tables. 1 figure.

Intratracheal Atomization in the Treatment of Infectious Disease of the Respiratory System. *Pedro L. Farinas, O. Suarez de Bustamante, Luis M. Lott, and Rene Revuelta, Havana, Cuba.* Dis. of Chest 15: 546-55, May 1949.

Patients studied presented pulmonary suppurations such as bronchiectasis, abscess of the lungs, and gangrene of the lungs. These had previously received oral medications or antibiotics administered parenterally. A long sprayer with fine atomization was used. Procedure began by anesthetizing the pharynx, larynx, and trachea with an atomization of 2 cc. of 1/2% pontocaine solution. Varying concentrations of 100,000 to 1,000,000 units of intratracheal crystalline penicillin in isotonic saline solution were used daily in volume 5 cc., and progressively increased. Continuous atomization in both phases of respiration proved effective in keeping the glottis open and avoiding cough and pharyngeal contraction. The supraglottis technic was tolerated better than the infraglottic. Simultaneous study of blood and sputum showed high antibiotic action in the sputum, and low antibiotic action in the blood. In the case of bronchiectasis, expectoration decreased in 24 hours, and modification of the bacterial flora resulted. In cases of neoplasm with abscess, coughing was relieved after the second application, and expectoration decreased appreciably. 7 figures.

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*Nieman, I. S.: Prophylactic Value of Sulfathiazole, Arch. Otolaryngol. 47:158 (Feb.) 1948.